A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF FOOT MASSAGE ON PAIN AMONG PATIENTS WITH CANCER IN SELECTED HOSPITAL, IDUKKI, KERALA.

BY

30083602

A DISSERTATION SUBMITTED TO THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING

MARCH – 2010

A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF FOOT MASSAGE ON PAIN AMONG PATIENTS WITH CANCER IN SELECTED HOSPITAL, IDUKKI, KERALA.

BY

30083602

Research Advisor: _____

Prof. Dr. JEYASEELAN MANICKAM DEVADASON, R.N., R.P.N., M.N., D.Lit., Ph.D.,

Clinical Speciality Advisor: _____

Prof. Mrs. JESSIE SUDARSANAM, M.Sc., (N)., HOD – Medical Surgical Nursing

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING FROM THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI.

MARCH – 2010

CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

30083602

AT THE ANNAI J.K.K. SAMPOORANI AMMAL COLLEGE OF NURSING

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF NURSING FROM THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI.

Examiners:

1. _____

2. _____

_____

Dr. JEYASEELAN MANICKAM DEVADASON,
R.N., R.P.N., M.N., D.Lit., Ph.D.,
DEAN, H.O.D., Nursing Research,
Annai J.K.K. Sampoorani Ammal College of Nursing,
Komarapalayam.

CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

30083602

AT THE ANNAI J.K.K. SAMPOORANI AMMAL COLLEGE OF NURSING

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF NURSING FROM THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI.

_____

Dr. JEYASEELAN MANICKAM DEVADASON,
R.N., R.P.N., M.N., D.Lit., Ph.D.,
DEAN, H.O.D., Nursing Research,
Annai J.K.K. Sampoorani Ammal College of Nursing,
Komarapalayam.

ACKNOWLEDGEMENT

I praise and thank GOD ALMIGHTY for his blessing, abundant grace and mercy that enriched me throughout the study.

I am at loss of words to appropriately convey my sense of gratitude to Dr.JAYASEELAN MANICKAM DEVADASAN, Dean, Research Guide, Annai J.K.K Sampoorani Ammal College of Nursing, for his inspiration, valuable guidance, untiring and patient correction, provocating thoughts and concern for the completion of this research study.

With special reference, I thank, Dr.JKK.MUNIRAJAH, Founder, Managing Trustee, Annai J.K.K Sampoorani Ammal College of Nursing for the facilities, he had provided during the course of my study.

I express my profound gratitude to Prof. Mrs. TAMILMANI, Principal, Annai J.K.K Sampoorani Ammal College of Nursing, for her excellent guidance, keen interest, enduring moral support and valuable suggestion in completing this study.

I express my heart felt and faithful thanks to Prof. JESSIE SUDARSANAM, HOD, Department of Medical Surgical Nursing, Annai J.K.K. Sampoorani Ammal College of Nursing, Komarapalayam for her efforts, valuable suggestions, timely guidance and personal interest as my specialty guide to complete this study successfully.

I extend my deep sense of gratitude to Ms. SHOBANA, M.Sc.(N), Department of Medical Surgical Nursing, Annai J.K.K. Sampoorani Ammal College of Nursing, Komarapalayam for her constant encouragement, valuable suggestions and help.

I whole heartedly express my sincere thanks to the panel of expert valuators Prof. JESSIE SUDARSANAM, HOD, Department of Medical Surgical Nursing, Ms. SHOBANA.J, Asst. Professor, Department of Medical Surgical Nursing, Dr. P.SUTHAKAR, Oncologist, HCG Cancer Centre, Erode, Mr.R. FERDINAND, Assistant Professor, JKKMMRF College of Physiotherapy, Komarapalayam, Ms. MEENA, Lecturer, JKKMMRF College of Physiotherapy, Komarapalayam, Mrs. THENMOZHI, Lecturer, JKKMMRF college of Physiotherapy, Komarapalayam

I am thankful to Dr. Sr.SUGUNA F.C.C, Medical Superintendent, Alphonsa Pain and Palliative Centre, who permitted me to conduct the study in the hospital and other sisters for their kind help and support, without which the study would not be completed.

I am indebted to all the patients who willingly participated in this study without their help, co- operation this study would not have materialized.

My special thanks to my ever loving father Mr. C.K. JOSEPH, Mother Mrs. SHEELA JOSEPH, Brother Mr. JUSTINE JOSEPH and Sister Miss. LIZA JOSEPH for their constant prayers, love, care, constant encouragement, strength and support throughout the course of study.

I am thankful to all the teaching staff of Annai J.K.K sampoorani Ammal College of nursing for their support.

I extend my sincere gratitude to the staff of library Mr.JAYARAJ, Mr. EBENEZER, office staff Mrs. RUTH and Mr. RAVIDASS for their help during the course of my work.

I wish to express my gratitude to all my companions for their help, support and prayers.

I wish to express my heartfelt thanks to Mr. V.MOHANRAJ, Mr. M.SETHURAMAN and Mr. S.MANIKANDAN, who spent their valuable hours of work to shape this thesis neatly.

Above all I lift my eyes to the heaven, bend my knees and offer my deepest sense of everlasting gratitude to GOD ALMIGHTY, Thank You Lord for everything.

30083602

TABLE OF CONTENTS

CHAPTER NO	CONTENT	PAGE NO
I	INTRODUCTION	1-12
	- Background of the study	1
	- Need for the study	3
	- Statement of problem	6
	- Objectives	7
	- Hypotheses	7
	- Operational definitions	7
	- Assumption	8
	- Delimitation	8
	- Conceptual Framework	9
II	REVIEW OF LITERATURE	13-20
	1. Studies related to pain in cancer.	13
	2. Studies related to foot massage in general.	16
	3. Studies related to foot massage and pain among cancer patients.	19
III	METHODOLOGY	21-30
	- Research design	21
	- Setting of the study	24
	- Variables	24
	- Population	24

CHAPTER NO	CONTENT	PAGE NO
	- Sampling technique	24
	- Inclusion criteria	25
	- Exclusion criteria	25
	- Sample Size	25
	- Development of Tool	26
	- Description of the Tool	26
	- Validity of the Tool	26
	- Pilot Study	27
	- Foot Massage	27
	- Validity of Foot Massage	27
	- Data Collection	27
	- Plan for Data Analysis	28
	- Ethical consideration	29
IV	DATA ANALYSIS AND INTERPRETATION	31-46
	- Data on background variables of cancer patients in the control and experimental group.	31
	- Data on pain among cancer patients in experimental and control group.	40
	- Data on association between the mean differences in pain and selected factors among experimental group.	45

CHAPTER NO	CONTENT	PAGE NO
V	SUMMARY, FINDINGS, DISCUSSION, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION	47-54
	- Summary	47
	- Characteristics of the study sample	49
	- Findings	50
	- Discussion	51
	- Implications	52
	- Limitations	53
	- Recommendations	54
	- Conclusion	54
	REFERENCES	55-60
	- Text books	55
	- Journals	56
	- Unpublished thesis	59
	- Secondary sources	60
	APPENDICES	
	ABSTRACT	

LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1.	Frequency and percentage distribution of cancer patients in the experimental and control group regarding their background factors.	31
2.	Mean, SD, Mean difference, and “t” value on pain before and after foot massage in experimental group.	40
3.	Linear regression regarding mean difference in pain and background variables among the patients in experimental group	45

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE NO.
1.	Conceptual framework	12
2.	Research Design	23
3.	Frequency and percentage distribution of cancer patients in experimental group and control group regarding duration of present illness	34
4.	Frequency and percentage distribution of cancer patients in experimental group and control group regarding present treatment received	35
5.	Frequency and percentage distribution of cancer patients in experimental group and control group regarding previous experience with cancer patients.	36
6.	Frequency and percentage distribution of cancer patients in experimental group and control group regarding their experience with alternative pain relievers.	37
7.	Frequency and percentage distribution of cancer patients in experimental group and control group regarding diagnosis. .	39
8.	Mean pain among experimental and control group before and after foot massage.	42
9.	Mean difference between each observations and ‘t’ values of cancer pain among experimental and control group.	44

LIST OF APPENDICES

NO	APPENDIX
1.	Letter seeking permission to conduct research study
2.	Permission letter
3.	Letter seeking permission for content validity
4.	List of experts
5.	Content validity certificate
6.	Certificate of foot massage technique
7.	Tool developed for data collection in English
8.	Tool developed for data collection in Malayalam
9.	Procedure for foot massage

CHAPTER – I

INTRODUCTION

It Is Not How Much We Do - It Is How Much Love We Put Into the Doing

- Mother Teresa

BACK GROUND OF THE STUDY

Cancer is a disorder in which differentiated body cells under go changes at the molecular level resulting in loss of normal cell regulation, characteristics and functions. Development of cancer is an orderly process comprising stages like initiation, promotion and progression. Causes of cancer may be genetic, radiation, chemical or viral in nature.

General signs and symptoms of cancer include unexplained weight loss, fever and fatigue, pain and skin changes. Seven warning signs of cancer are change in bowel habits or bladder function, sores that do not heal, unusual bleeding or discharge, thickening or lump in the breast or other parts of the body, indigestion or difficulty in swallowing, change in a wart or mole, nagging cough or hoarseness. Diagnostic plan for a person whom suspected cancer includes health history, identification of risk factors, physical examination and specific diagnostic studies.

The goal of cancer treatment is cure, control and palliation. When cure is the goal the treatment will be surgical therapy, chemotherapy, or radiation therapy where after treatment the patient will be free of disease and will have a normal life span. Control is the goal of treatment plan patient undergoes the initial course of therapy and is continued on maintenance therapy

for a period of time. With palliation, relief or control of symptoms and maintenance of satisfactory quality of life are the primary goals. (Lewis et al)

Pain is an unpleasant sensory and emotional experience in association with actual or potential tissue damage, or described in terms of such damage." (The International Association for the Study of Pain). Approximately 30% to 50% of people with cancer experience pain while undergoing treatment, and 70% to 90% of people with advanced cancer experience pain (Lesage P. and Portenoy RK). A study by Bernabei et al of more than 13,000 elderly cancer patients found 4,003 reported daily pain depends on many factors such as the type of cancer, the stage of the disease, and the patient's tolerance. Cancer pain can result from the following: Blocked blood vessels causing poor circulation, Bone fracture from metastasis, infection, inflammation, psychological and emotional problems, side effects from cancer treatments (e.g., chemotherapy, radiation) and tumor exerting pressure on nerve.

There are many ways to relieve pain, from drugs to surgery to acupuncture. Treatments vary from individual to individual, depending on the type and severity of pain, risk factors involved with using a particular treatment, and personal preference. Opioids, a common treatment for pain, can lead to dependence, addiction and tolerance. Pain is often under treated. Some of the most common treatments are analgesic drug therapy ,non-opioid analgesics, opioid analgesics, adjuvant drugs, WHO three-step analgesic ladder, psychotherapy ,anesthetic and neurosurgical pain management , neuro stimulatory procedures, acupuncture ,diathermy and cryotherapy, therapeutic exercise and massage and behavioral methods of pain control(Oncology channel.com).

Foot massage is a complimentary therapy that has great potential for use by nurse in a multidisciplinary pain management programme. Foot massage is the process of gentle but firm manipulation of feet to stimulate specific reflex points of the body. This is based on the principle

that there are reflexes running along the body which terminate in the feet and the hands, and that the body's organs and systems are reflected onto the surface of the skin (Norman and Cowman 1989). Massage acts like an analgesic and inhibits those pain signals from being transmitted to the brain. It is also thought that massage helps the body to release endorphins. Grealish *et al* recommended the use of foot massage as a complementary therapy and as a relatively simple nursing intervention for patients experiencing nausea or pain related to the cancer experience.

NEED FOR THE STUDY

Cancer is a leading cause of death globally, an estimated 7.6 million people died of cancer in 2005 and 84 million people will die in the next 10 years if action is not taken. The World Health Organization (WHO) has proposed a global goal of reducing chronic disease death rate by 2% per annum from 2006 to 2015.

According to National cancer control programme (NCCP), Cancers in all forms are causing about 12 per cent of deaths throughout the world. In the developed countries cancer is the second leading cause of death accounting for 21% (2.5 million) of all mortality. In the developing countries cancer ranks third as a cause of death and accounts for 9.5% (3.8 million) of all deaths. Tobacco, alcohol, infections and hormones contribute towards occurrence of common cancers all over the world.

According to NCCP Cancer has become one of the ten leading causes of death in India. It is estimated that there are nearly 1.5-2 million cancer cases at any given point of time. Over 7 lakh new cases of cancer and 3 lakh deaths occur annually due to cancer. Nearly 15 lakh patients require facilities for diagnosis, treatment and follow up at a given time. Data from

population-based registries under National Cancer Registry Programme indicate that the leading sites of cancer are oral cavity, lungs, esophagus and stomach amongst men and cervix, breast and oral cavity amongst women. Cancers namely those of oral and lungs in males, and cervix and breast in females account for over 50% of all cancer deaths in India. WHO has estimated that 91 per cent of oral cancers in South-East Asia are directly attributable to the use of tobacco and this is the leading cause of oral cavity and lung cancer in India.

At Alphonsa Pain and Palliative Centre, Idukki , 555 cancer patients got admitted from the period of May 2008 to May 2009 .Among them 165 patients died at the hospital.90% of them were experiencing pain due to cancer.

Cancer usually occurs in the later years of life and with increase in life expectancy to more than 60 years, an estimate shows that the total cancer burden in India for all sites will increase from 7 lakh new cases per year to 14 lakh by 2026. (NCCP)

Oncology channel says that 90% patients with advanced cancer experience severe pain. 30%-50% have pain at the time of diagnosis. 70% to 90% have severe pain when the disease is advanced. 40% die with severe pain. 60%-80%complains of inadequate pain relief by their physician. 30% are not relieved by drug treatment alone, so require interventional pain management. More than 90% cancer pain can be adequately controlled.

Thus the problem of dealing with pain and accompanying emotional stress presents a conundrum for both nurses and cancer patients alike one which cannot be solved with a set medication schedule, but demands consideration of a holistic care approach and the individualization of treatment. This made the researcher to think about a therapy that emphasis on comfort, cure and symptom control when cure is no longer possible.

The foot reflexology massage's history dates back to the reign of Emperor Wendi but its most flourishing period was in the Tang Dynasty (618-907 A.D.). Later, the foot reflexology massage was spread into Japan. The foot reflexology massage was brought to the Western countries when more and more Westerners started to get in touch with the Chinese around the late Manchu Dynasty (1643-1912 A.D.).

Then in 1913, Dr. William Fitzgerald, an American doctor, discovered that pressure on one part of a zone could affect other parts of the body within that zone. V. M. Bechterev, a Russian physiologist coined the term "reflexology".

Dr. Shelly Riley added horizontal zones across the hands and feet to determine individual reflexes. Eunice Ingham, a physical therapist and associate of Riley, refined the zone therapy into therapeutic foot reflexology. She made an anatomical model in which the organs of the body were mapped out on the feet. Her findings, published in 1938, resulted in identification of reflex points and the framework of foot massage as it is known today.

C.Sheeba (2007) reported a descriptive study to assess the selected acute symptoms experienced by 30 cancer patients receiving palliative home care in and around Vellore and results showed that majority of the terminally ill cancer patients experienced pain (80%).

Molly (2007) conducted an experimental study to determine the therapeutic effect of foot-massage to reduce pain as a measure in palliative care using interrupted time series design. The study was conducted in Institute of Pain and Palliative Medicine Calicut consisting of 30 samples. Posttest on 3rd day shows that only 6% patients had severe pain and majority of them (70%) had moderate pain.

Kalyani V.C(2006) conducted an experimental study to assess effectiveness of music therapy on pain, anxiety and selected factors in 30 cancer patients in Apollo hospitals Chennai by giving 2 sessions of 30 minutes music therapy for 5 consecutive days. The pain score of cancer patients was high before (m=8.31, SD=1.391) in comparison with scores after (m=2.49, SD= .9) the music therapy ($t=2.19$, $p<0.05$).

Puthusseril.V. (1993) studied the effect of foot massage in a group of breast cancer patients undergoing radiation to chest wall and associated drainage areas to test its effectiveness on anxiety, depression and quality of life .It was found to cause a significant reduction in anxiety and depression with significant increase in quality of life.

Foot massage is an important and much neglected aspect of nursing care. Foot massage has physical and psychological benefits for the whole person. Interested family members can perform foot massage on their loved ones, and nurses can support families by teaching them this simple skill.

Foot massage is a very effective means of communication. It provides physical contact in a very acceptable way within the Indian culture. It can be particularly valuable for those who receive little human touch. To be touched in a gentle and unembarrassed way can be very comforting. It is also a good way of getting to know someone well by developing a relationship based on honesty and trust.

STATEMENT OF PROBLEM

A quasi experimental study to assess the effectiveness of foot massage on pain among patients with cancer in selected hospital, Idukki, Kerala.

OBJECTIVES

1. To assess the pain before and after foot massage among patients with cancer in experimental group.
2. To compare the mean difference in pain among cancer patients between the experimental and control group.
3. To test the association between the mean difference in pain and selected factors among patients with cancer in experimental group.

HYPOTHESES

H_1 : There will be a significant difference in pain before and after foot massage among patients with cancer between experimental and control group.

H_2 : There will be a significant difference in the mean difference of pain among cancer patients between the experimental and control group.

H_3 : There will be a significant association between mean difference in pain and selected factors among patients with cancer in experimental group.

OPERATIONAL DEFINITIONS

1. Pain: Pain is defined as an unpleasant sensory and emotional experience associated with activity or potential tissue damage. Pain is measured in terms of pain scores by numerical pain rating scale.

2. Foot massage: Foot massage is technique by which both the feet of the recipient are held at various positions, stroked gently and rhythmically to attain a relaxation response. In this study foot massage was done as specified in procedure for foot massage. (Appendix IX)

3. Cancer patients: Refers to those clients who were diagnosed to have malignancy by the oncologist .And those receiving non-surgical treatment at Alphonsa Pain and Palliative Centre, Idukki.

4. Selected factors: Refers to those issues which can influence the pain reduction among cancer patients. For the purpose of this study it was classified as

Background factors included age, sex, marital status, educational status, occupation, religion and family monthly income.

Disease factors included diagnosis, duration of illness, organs involved, treatment received, analgesic and alternative pain relief measures.

ASSUMPTION

1. The patient would co-operate and be willing to participate in the study.
2. The items included in the tool will be adequate and represent the measure of pain of cancer patient.
3. The response to numerical pain rating scale would be the true measure of the pain experienced by the cancer patients.
4. Every client is unique and responds in a unique manner to pain.

DELIMITATION

1. Patients in a selected hospital only.
2. Participants selected by non - random method.
3. Pain was measured by numerical rating scale.

CONCEPTUAL FRAMEWORK

The present study was aimed at to evaluate the effect of foot massage on pain among cancer patients. The conceptual frame work of this study was derived from gate control theory of pain.

Gate control theory of pain

The gate control theory was initially proposed in 1965 by Melzack and Wall. Gating mechanism can be found in substantia gelatinosa cells within dorsal horn of the spinal cord, thalamus and limbic system. This theory states that pain is a function of the balance between information traveling into the spinal cord through large nerve fibers and information travelling into the spinal cord through small nerve fibers. Small diameter nerve fibers carry pain stimuli through a 'gate mechanism' but larger diameter nerve fibres going through the same gate can inhibit the transmission of the smaller nerves carrying the pain signal.

This theory suggested that the existence of gate that could facilitates or inhibit the pain transmission is possible as the gate is controlled by the dynamic function of the certain cells in the spinal cords dorsal horn. Pain messages send along the spinothalamic and spinoreticular tracts can be inhibited by activity in larger diameter alpha and beta fibres and chemical substances like endorphin secretions. Endorphins blocks pain signals.

Based on the principle of gate control theory, the following conceptual frame work was developed. Foot massage was used as pain relieving measure.

Cancer patients

Refers to those clients who were diagnosed to have malignancy by the oncologist and those receiving non-surgical treatment. They posses background factors such as age, sex, marital status, educational status, occupation, religion and family monthly income and disease

factors like diagnosis, duration of illness, organs involved, treatment received, analgesic and alternative pain relief measures .

Pain perception

Is the point at which a person experience pain. In this study pain was measured in terms of pain scores by numerical pain rating scale.

Intervention

In this study the intervention is the foot massage. Foot massage is technique by which both the feet of the recipient are held at various positions, stroked gently and rhythmically to attain a relaxation response. The foot massage was done according to the steps stated in the "Procedure for foot massage" (Appendix IX)

Stimulation of pain receptors

Pain is transmitted through the body by the nervous system when nerve endings detect damage to a part of the body. The nerves transmit the warning through defined nerve pathways to the brain, where the signals are interpreted as pain. In control group more stimulation of free nerve endings. In experimental group less stimulation of free nerve endings due to relaxation caused by foot massage.

Traveling of pain impulses

Normally pain impulses are traveling through small short conducting fibres. Impulses from stimulation such as massage will be quickly transmitted by large fibres. In control group pain impulses will be conducted straight away by small fibres, which reach the gate of pain and open the gate. In experimental group where the patients receive foot massage, impulses will be conducted by fast conducting large fibres which reaches the gate of pain very quickly.

Pain gating mechanism

Refers to the means of reducing pain. It either regulates or blocks the pain impulses along the central nervous system. When gates are open, pain impulses flow easily through pain path ways, when gates are closed, the pain path ways are blocked and pain impulses become reduced. In this study when foot massage was administered to the experimental group, which encourages the release of endorphins. So the pain gate was closed and pain impulses were blocked. Foot massage was not administered to the control group, therefore the pain gate was opened and pain was felt.

Pain perception after foot massage was measured as mean reduction in pain. It was hypothesized that the foot massage will make a significant difference in the pain perceived by cancer patients.

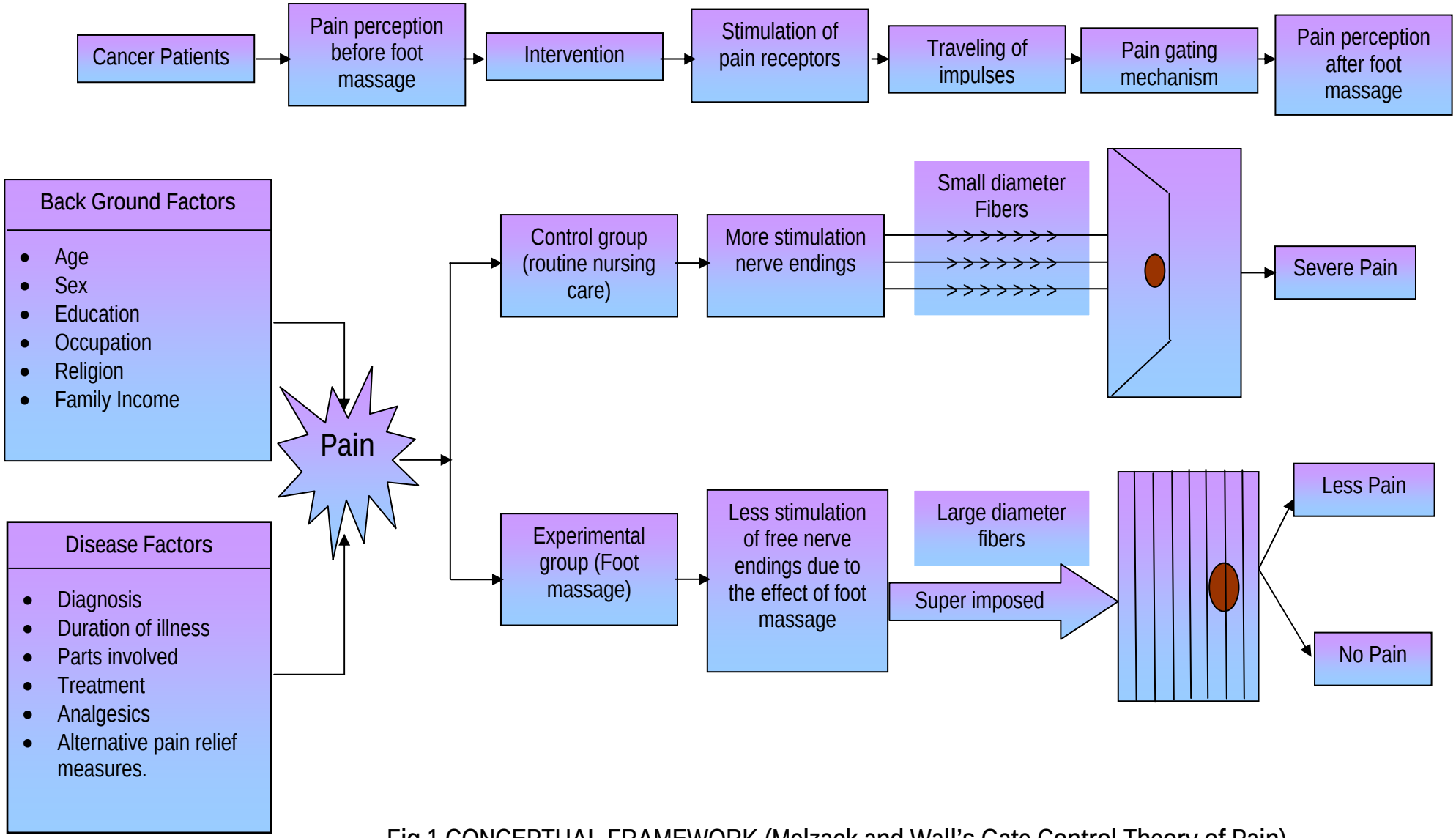


Fig 1.CONCEPTUAL FRAMEWORK (Melzack and Wall's Gate Control Theory of Pain)

CHAPTER – II

REVIEW OF LITERATURE

The primary purpose of reviewing relevant literature is to gain a broad background or understanding of the information that is available related to a problem. The present study investigates the effect of foot message on pain among patients with cancer. The reviews of selected studies were presented in the following headings.

I. Studies related to pain in cancer.
II. Studies related to foot massage in general.
III. Studies related to foot massage and pain among cancer patients.

I. STUDIES RELATED TO PAIN IN CANCER

Constantini.M., et.al., (2009) reported a mortality follow-back survey to determine the prevalence, distress, management and relief of pain during last 3 months of cancer patients life of a representative sample of dying cancer patients .Care givers were interviewed, after the patients death, about pain experienced by the patients. According to care givers, 82.3% (95% CI 79.9% to 84.4%) patients experienced pain and 61.0%, (95% CI 57.9% - 64-0%) very distressing pain, the younger population experienced a higher prevalence of pain in respect to older patients (P<0.01).

Devi.K (2009) observed the effectiveness of hypnosis on cancer pain among 40 patients (20 experimental, 20 control) using purposive sampling in Christian fellowship community health centre, Dindigul. The study used quasi experimental design .Data collected

through structured interview schedule and numerical rating scale to assess pain. Hypnosis was given for 15 to 20 minutes everyday for 5 days .There was a significant difference between the mean pain before 6.1(S.D=0.9) and after 2.6(S.D=0.59) hypnotherapy in experimental group t=27.5(p=.001).

Tsai Sc (2009) studied the incidence and factors related to Emergency Department (ED) visits by cancer patients with pain complaints during a year period. Medical charts selected by stratified random sampling included 1179 ED visits by 1026 cancer patients were retrospectively reviewed. Pain was the most common reason for emergency department visits by cancer patients. The incidence of ED visits for pain as a presenting problem was 27.8%.

Sheeba.C. (2007) reported selected acute symptoms experienced by cancer patients and the feasibility of a structured training programme on symptom management of 30 cancer patients receiving palliative home care in and around Vellore using purposive sampling. Pain measured using numerical pain rating scale and it showed that majority of the terminally ill cancer patients experienced pain (80%) .

Deimling GT, Bowman KF and Wagner LJ (2007) observed the fatigue and pain reported by 321 long-term (5 years), older adult (>or=60 years) survivors of breast, prostate, and colorectal cancer selected by random sampling in Case Western Reserve University, USA. Importance of cancer and age-related factors as correlates of pain and fatigue as well as the relationship between pain and fatigue and functional difficulty. Data collected from interview schedule and tumor registry. The results were examined of multivariate analysis indicated that the pain, energy level, and weakness reported by older adult cancer survivors are more strongly related to age-related factors than they are to cancer-related factors. Age-related factors accounted for 14% of the variance in pain compared with 2% for cancer-related factors. For energy level, age-related factors explained 4% of the variance, whereas cancer-related factors account for 2%. Age-related factors accounted for 9% of the variance in weakness

compared with 6% for cancer-related factors. Furthermore, pain, energy, and weakness are all statistically significant predictors of functional difficulties (beta = .20, -.16, and .11, respectively).

Edrington, et al., (2007) reported a study to examine the experience of pain in Chinese cancer patients. Pub med, psych info and Google scholar searches were conducted for years 1996 to 2005 for all research in English. The literature search and review of the reference lists from the studies identified the 24 studies that were used in the review. Most of these descriptive co-relational studies evaluated the physiologic and sensory dimensions of the pain experience reported moderate to severe pain and that pain interfered with their normal activities and mood (P<.001).

Kalyani.V.C. (2006) conducted an experimental study to assess effectiveness of music therapy on pain, anxiety and selected factors in 30 cancer patients using purposive sampling technique in Apollo hospitals Chennai by giving 2 sessions of 30 minutes music therapy for 5 consecutive days. The instruments used were demographic and clinical variables Performa, spiel burger's-state anxiety sub scale, 0-10 point pain intensity scale and assessment tool on physiological variables. The pain of cancer patients was high before (m=8.31, SD=1.391) in comparison with scores after (m=2.49, SD= .9) the music therapy (t=2.19, p<0.05).

Myastakidoce, et.al., (2005) reported a study to assess the relationship between pain and the desire for hastened death among 120 terminally ill cancer patients under palliative treatment from June 2003 to Nov 2004 in University of athence, Greece. Patients completed a pain assessment tool, the Greek Brief Pain Inventory (G-BPI) and a self report measure of the desire for hastened death, the Greek Schedule of Attitudes towards Hastened Death (G-SAHD).Significant associations were found between severity and interference items of G-SAHD and G-BPI3, "worst pain in the last 24 hours" (r = 0.279, P = .002); G-SAHD and G-BPI4, "least pain in the last 24 hours" (r = 0.253, P = .005); and G-SAHD and G-BPI5, "average

pain in the last 24 hours" (r = 0.283, P = .002).It reveals stronger association between G= SAHD and GBPI in relief provided by pain treatment and medications in the last 24 hours (r= .326, P=0.001).

II. STUDIES RELATED TO FOOT MASSAGE IN GENERAL

Wang M.Y. et al., (2008) reported a study to assess the efficiency of reflexology in any condition. Cohrane library, pubmed, medline, EBM review, proquest medical bundle and scopos data bases were searched using following subject heading reflexology, foot reflexology, reflexocolgical treatment & foot massage. The publication data limited from 1996 to 2007 43 abstracts selected which are written in English or Chinese using a controlled clinical trail design. Study quality was reviewed based on the evidence rating system of the United States. Results suggest that treatment effect for urinary systems was large.

Xavier.R. (2007) undertook a quasi experimental study to determine the effectiveness of reflexology (foot massage) in reducing pain in specific urologic conditions in CMC-Vellore among 30 patients who undergone urological surgery using simple random sampling and each patient received 30-45 minutes of foot massage, pre and post assessment of pain was done by using visual analogue scale, using a ten point scale and the interview schedule using a likert scale with scoring 0-3. Comparison between pre and post assessment was done by Wilcoxon signed rank test. After foot massage the pain level of 19 (63.3%) patients were reduced from severe to moderate, in 2(6.6%) patients was reduced from moderate mild and for 9(30%) patients it remained in same level after foot massage (P<0.001).

Abraham.P.S. (2006) reported an experimental study to assess the effectiveness of reflexology in reducing chemotherapy induced nausea and vomiting (CINN) at CMC Vellore consisting of 128 subjects 64 (control) and 64 (experimental) who received moderate, high and very high emetogenic chemotherapy selected by purposive sampling technique. The

instruments used were demographic data, clinical variables, nausea assessment by numerical rating scale and questionnaire. The study revealed that there was a reduction in the mean total score for nausea in experimental group (2.93) than in control group (3.46). Also the mean of total number of episodes of nausea less in experimental group (19.96%) than in control group (22.2), (P=.23 and .68 respectively).

Lee.Y.M., Sohng.K.Y. (2006) reported a quasi experimental study of the pre and post test design in a non equivalent control group to determine the effects of foot reflexology in fatigue and insomnia in experimental group of twenty nine and the control group of thirty patients suffering from coal workers pneumoconiosis. Foot reflexology was performed for 60 minutes twice a week through five weeks the experimental group but none in the control group. Fatigue was evaluated by fatigue symptoms inventory and insomnia with the visual analogue scale (VAS). Data of this experimental was analyzed by Chi-square test, t-test, unpaired t-test and repeated measures ANOVA with the SAS program. The scores of fatigue and insomnia decreased in experimental group but not in the control group.

Qualtrin.R.et.al., (2006) Conduced a study to examine the effectiveness of reflexology foot massage in hospitalized Cancer patients undergoing second or third chemotherapy cycles consisting of 30 patients , 15 experimental and 15 control being admitted to the oncology unit at a scientific research hospital in Italy. The subjects self reports of anxiety measured by spiel burger state anxiety inventory were recorded before, after and 24 hours after the intervention. There was average decrease of 7.9 points on the state anxiety scale in the treatment group and of 0.8 points in the control group (P<0.0001).

Sang.R.H., Kim.D.H., (2006) Conducted non-equivalent control group pre-test and post test quasi experimental study to examine the effects of foot reflexion massage on sleep disturbance, depression disorder and physiological index of the elderly in nursing homes consisting of 25 elderly people in control group and 25 in experimental group. The foot reflex

ion on massage was provided for 12 sessions, 30 minutes per sessions. The selected dependent variables were sleep disturbance, depression disorder and physiological indices. Data analysis included chi 2 test, t-test, paired t-test and ANCOVA using the SPSS program package. The result showed improved sleep quality, less depression disorder and high serotonin levels in experimental group than control group.

Williamson.J., et.al., (2002) reported a randomized controlled trial of reflexology for menopausal symptoms consisting of sixty six women, aged between 45 and 60 years reporting menopausal symptoms. The women were randomized to receive nine sessions of either reflexology or non specific foot massage by four qualified reflexologists given over a period of 19 weeks. The tools used are woman's health questionnaire (WHQ), primary measures being the sub scores for anxiety and depression (VAS) and frequency of flushes and night sweats. Mean (SD) scores for anxiety fell from 0.43 (0.29) to 0.22 (0.25) in the reflexology group and from 0.37(0.27) to .27 (0.29) in the control group over the course of treatment. Mean (SD) scores of depression fell from 0.37 (0.25) to 0.20 (0.24) in the reflexology group and from 0.36 (0.23) to 0.20(0.21) control (foot massage) group over the same period. For both scores there was strong evidence of a time effect ($P<0.001$).

Hayes.J., Cox.C., (1999) conducted a quasi experimental study to assess the immediate effects of a five-minute foot massage on 25 patients in critical care. Physiological data (heart rate, mean arterial blood pressure, respirations & peripheral oxygen saturation) were obtained from the patient bedside monitoring system. A significant decrease in the heart rate, blood pressure and respirations was observed during the foot massage intervention.

III. STUDIES RELATED TO FOOT MASSAGE AND PAIN AMONG CANCER PATIENTS

Currin.J, Meister EA (2008) undertook a nonrandomized single-group pre- and post design study to assess the impact of a Swedish massage intervention on oncology patients' perceived level of distress. A total of 251 oncology patients participated in this study for over a 3-year period at a university hospital setting in southeastern Georgia. Each patient's distress level was measured using 4 distinct dimensions: pain, physical discomfort, emotional discomfort, and fatigue. The analysis found a statistically significant reduction in patient-reported distress for all 4 measures: pain ($f = 638.208$, $p = .001$), physical discomfort ($f = 742.575$, $p = .001$), emotional discomfort ($f = 512.0$, $p = .001$), and fatigue ($f = 597.976$, $p = .001$). This reduction in patient distress was observed regardless of gender, age, ethnicity, or cancer type.

Molly (2007) observed the therapeutic effect of foot-massage to reduce pain as a measure in palliative care using interrupted time series design. The study was conducted in institute of pain and palliative medicine, Calicut consisting of 30 samples. The tools selected for the study were a standardized visual analogue scale and an observation record for recording pain intensity, pulse and respiratory rate. Majority of patients (60%) had duration of pain more than 12 months, about 26% of the patients had pain the range of 6-12 months and the remaining had pain for less than 6 months. Posttest on 3rd day shows that only 6% patients had severe pain and majority of them (70%) had moderate pain.

Shiow-Luan.et.al., (2005) investigated the efficacy of foot reflexotherapy as adjuvant therapy in relieving pain and anxiety in postoperative patients with gastric cancer and hepato cellular cancer using randomized control trail in Taipei, Taiwan .Sixty-one patients who had received surgery were randomly allocated to an intervention ($n = 30$) or control ($n = 31$) group. Patients in the intervention group received the usual pain management plus 20 minutes of foot reflexotherapy during postoperative days 2, 3, and 4. Patients in the control group received

usual pain management. Data collected thorough the short-form McGill Pain Questionnaire, visual analog scale for pain, summary of the pain medications consumed, and the Hospital Anxiety and Depression Scale. Results demonstrated that studied patients reported moderately high levels of pain and anxiety postoperatively while patients were managed with patient-controlled analgesia and less pain ($P < .05$) and anxiety ($P < .05$) over time were reported by the intervention group than the control group. In addition, patients in the intervention group received significantly less opioid analgesics than the control group ($P < .05$).

Stephenson.N.L, Weinrich.S.P., and Tavakoli.A.S., (2001) conducted a quasi-experimental study to assess the effects of foot reflexology on anxiety and pain in patients with breast and lung cancer at the School of Nursing, East Carolina University . The samples consisted of 23 inpatients who were receiving regularly scheduled opioids and adjuvant medications on the control and intervention day. The tool included pain and anxiety scales. Researchers noted a significant decrease in anxiety for patients diagnosed with breast or lung cancer and a significant decrease in pain for patients with breast cancer.

Grealish.L, Lamasery.A., and Whiteman.B., (2000) assessed the therapeutic effect of foot massage on pain, nausea and relaxation in University of Canberra, Australia.. 87 participants were included in the study ranging age from 18-88 years. The massage sessions were of 10 minutes duration for three consecutive evenings between 7am and 8pm. The pain, nausea and relaxation measured using 0-100mm visual analogue scale .For the control session, the pretest mean pain score was 21.3 + 20.2 mm and post test mean pain score was 20.4 + 19.8mm representing a mean difference of .874 mm (t=.867, P =0.1943). The pretreatment mean pain score for massage session I was 25.1 + 21.7mm, which decreased to 15.3 + 19.0mm (t=5.979; p=0.001)) immediately after massage, resulting in a mean difference of 9.8 mm. similarly the mean pain score for massage session II decreased 9.4 mm from 27.9 +25.5mm to 18.5 + 19.1mm (+-5.751; P= 0001).

CHAPTER – III

METHODOLOGY

This chapter deals with description of the different steps undertaken by the investigator for the study. It includes the research design, variables, setting, population, sample size, sampling technique, sample criteria, description of tool, content validity, pilot study, data collection procedure and plan for data analysis and ethical consideration.

RESEARCH DESIGN

Evaluative research is an applied from of research that involves how well a program, practice, procedure or policy is working. It involves the collection and analysis of information relating to the functioning of a program or intervention with aim of assessing the effectiveness. (Polit, 1999)

The research approach in the study was quasi experimental design. To be specific, repeated measure time series with control group design to evaluate pain of cancer patients. There were two groups, experimental and control group. The control group was similar to experimental group with regard to age and other selected factors. The experimental group included those patient who were different from control group only with regard to receiving foot massage. Pre test pain score was measured in both experimental and control group. Foot massage was administered to experimental group for 20 minutes for 7 days .Control group received their routine treatment .Post test pain was measured on the first, fourth and seventh day.

RESEARCH DESIGN NOTATION

E : $O_1X_1O_2X_2$ X_3X_4 O_3X_5 $X_6X_7O_4$

C : O_5 - O_6 - - - O_7 - - - O8

E = Experimental group

C = Control Group

X = Intervention the foot massage

- = No intervention

O_1, O_5 = Pre test in experimental and control group respectively

O_2, O_3, O_4 = Post test in experimental group

O_6, O_7, O_8 = Post test in control group

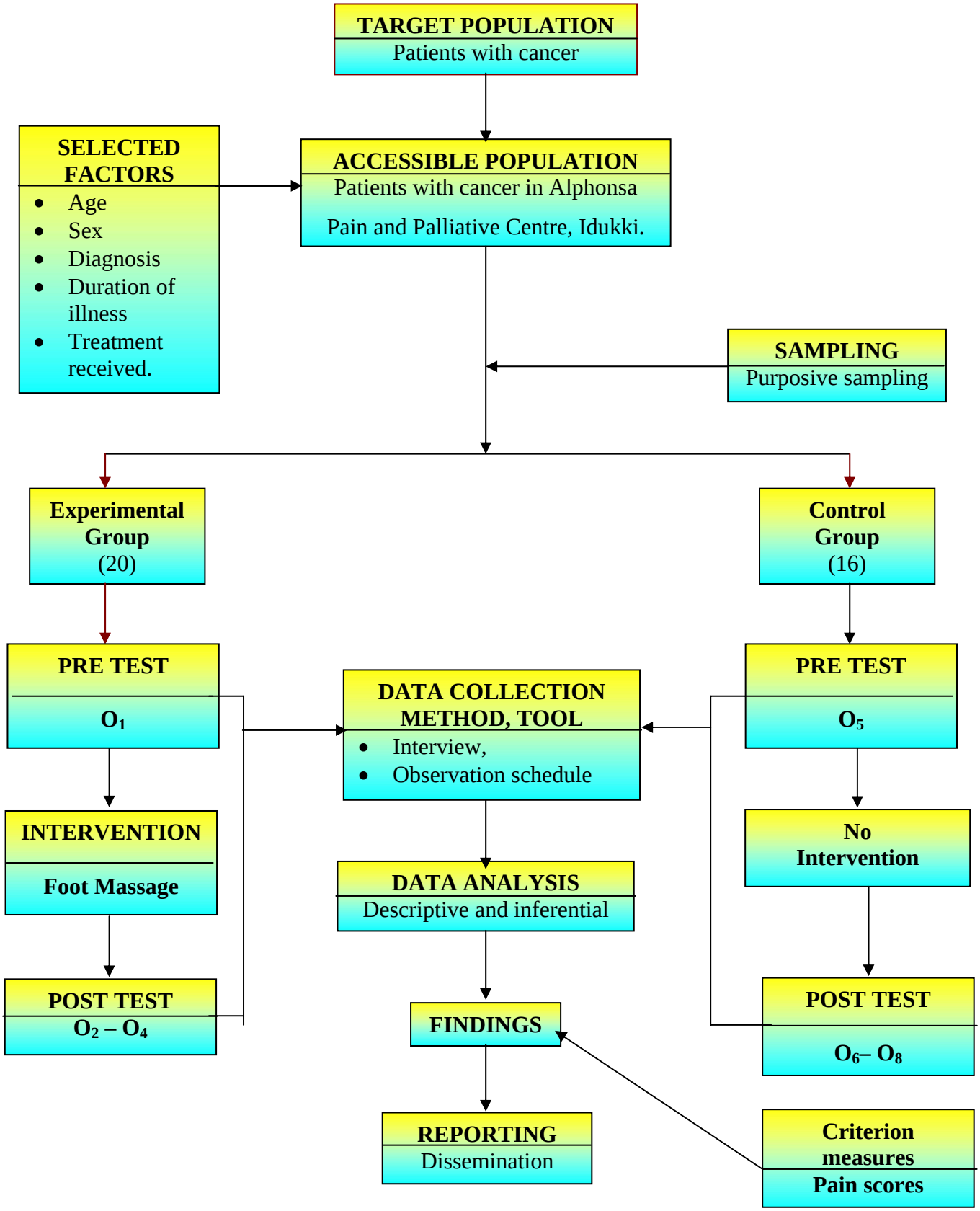


Fig. 2: DIAGRAMATIC REPRESENTATION OF RESEARCH DESIGN

SETTING OF THE STUDY

It is essential for the researcher to consider the setting in which the experiment is conducted. This study was conducted in the Pain and Palliative Centre at Alphonsa Hospital, Idukki.

VARIABLES

The categories of variables discussed in this study were

- Independent variable - foot massage
- Dependent variables - pain

POPULATION

Target population refers to the population that researcher wishes to make a generalization. In this study the target populationf were the patients with cancer.

Accessible population refers to the aggregate of cases which confirm to the designed criteria and which is accessible to the researcher as the pool of subjects. In this study the accessible population were patients with cancer admitted in Alphonsa Pain and Pallative Centre, Idukki.

SAMPLING TECHNIQUE

It is the process of selecting subjects from a population in order to obtain information regarding a phenomenon in a way that represents the entire population. In this study the investigator selected patient with cancer by purposive sampling method.

INCLUSION CRITERIA

Inclusion criteria are characteristic that each sample element must possess to be included in the sample

It specified the patients

1. Diagnosed with cancer
2. Of both sexes
3. Who were above 18 years
4. Who had pain >4 as monitored in pain intensity scale on the first day of study.
5. Those who were willing to participate in the study.
6. Who were present at the time of data collection.
7. Those who were able to understand Malayalam.

EXCLUSION CRITERIA

Exclusion criteria are characteristics that could confound or contaminate the results of the study therefore such participants are excluded from the study.

It specified those patients

1. Who had cancer involving foot/ leg
2. Who had altered level of consciousness

SAMPLE SIZE

Sample is subset of population that has been selected to represent the population of interest. The sample for the study was patients with cancer. The sample size for this study was arbitrarily decided to be 40, twenty for experimental and twenty for control. Finally a sample of 20 patients in experimental group and 16 patients in control group were included in the study.

DEVELOPMENT OF TOOL

The investigator prepared and developed an interview schedule as tool for present study after exploring all sources of information like extensive library search, internet sources and consultation with experts. Numerical pain rating scale was used to assess the pain.

DESCRIPTION OF TOOL

The study tool consisted of three sections

Section I : Background factors

Section II : Disease factors

Section III : Numerical rating scale on pain

Section I: This section consisted of background factors like age, sex, marital status, educational status, occupation, religion, family monthly income.

Section II: This section consisted of disease related factors such as diagnosis, duration of illness, site / organ / parts involved, treatment, analgesics and alternative pain relievers.

Section III: It consisted of a scale ranging 0-10 to assess the pain among cancer patients. The response ranged from no-pain at all - 0 to severe pain-10.

VALIDITY OF THE TOOL

The tool developed by the investigator was sent along with the request for validation to six experts including 3 physiotherapists, two nursing experts and one oncologist. The experts were requested to check for the relevance, sequence, adequacy of language of the tool. The tool was modified according to experts' opinion. The items with 100% agreement were included in the tool. A few items were modified and retained in the tool.

PILOT STUDY

Feasibility of study was done among five patients with cancer after obtaining permission from the authority. The setting was Alphonsa Pain and Palliative Centre, Idukki. It helped the researcher to ascertain the feasibility of the designed methodology.

FOOT MASSAGE

Foot massage is a systematic technique by which both the feet of the recipient are held at various positions, stroked gently and rhythmically to attain a relaxation response.

The foot massage procedure was developed under the following headings: preparations, preliminary steps, rocking steps and squeezing steps. Each step of foot massage was clearly narrated in appendix (IX). Foot massage was given once a day for seven consecutive days for the cancer patients.

VALIDITY OF FOOT MASSAGE

The investigator learned the foot massage from physiotherapist after individual practice; the procedure was validated by the physiotherapist while investigator demonstrated the procedure. Due certification was obtained.

DATA COLLECTION

The data were collected for 4 weeks from 5 October 2009 to 31 October 2009.Permission was sought and obtained from authorities of Alphonsa Pain and Palliative Centre, Idukki. Based on sample selection criteria using purposive sampling method samples

were selected. The study purpose and method were explained to individual participants and informed consent was obtained.

The information regarding background factors and disease factors were collected from 36 cancer patients by interviewing them and observing health records. The numerical rating scale was pasted on a chart and presented to the patients for easy handling.

First data were collected from the control group and then followed by experimental group. Pre-test on pain was measured. The intervention, foot massage was given for 20 minutes for seven consecutive days among experiment group. Post test pain was measured on 1st, 4th, and 7th day. The evidence of intervention and pain were marked in a grid. Intervention was done at the bedside. Pain was measured using numerical rating scale. All the patients received their routine care. Two patients in the experimental group died before seven days of intervention. They were excluded from the study.

PLAN FOR DATA ANALYSIS

The data were edited, coded and entered in Excel sheet. The data were analyzed using SPSS version 10.A probability of less than 0.05 was considered to be significant.

The data were analyzed as follows,

1. Background factors of patient and Disease factors in experimental and control groups were analyzed using descriptive statistics and chi-square.
2. Data on effectiveness of foot massage on cancer pain among experimental and control group were analyzed using descriptive and inferential statistics.
3. Data on association between the mean difference in cancer pain and selected factors among experimental group were analyzed using linear regression.

ETHICAL CONSIDERATION

The study objectives, intervention and data collection procedure were approved by the research and ethical committee of the institution. Main study was conducted after obtaining permission from the Medical superintendent of Alphonsa Pain and Palliative Centre. Informed consent was obtained from cancer patients. The freedom was given to the client to leave the study at his/her will without assigning any reason. No routine care was altered or withheld. No physical or psychological pain was caused.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation of data of this study is based on the data collected from the cancer patients. The data collected were edited, tabulated and analyzed using SPSS version 10.A probability value of less than 0.05 was considered to be significant. Findings were presented in the form of tables and diagrams.

The objectives of the study were,

1. To assess the pain before and after foot massage among patients with cancer in experimental and control group.
2. To compare the mean difference in pain among cancer patients between the experimental and control group.
3. To test the association between the mean difference in pain and selected factors among patients with cancer in experimental group.

The data analyzed were presented as follows:

Section – I	:	Data on background factors of cancer patients in the control and experimental group.
Section – II	:	Data on pain among cancer patients in experimental and control group.
Section – III	:	Data on association between the mean difference in pain and selected factors among cancer patients in experimental group.

SECTION – I: DATA ON BACKGROUND FACTORS OF CANCER PATIENTS IN THE CONTROL AND EXPERIMENTAL GROUP.

TABLE – I

Frequency and percentage distribution of cancer patients in the experimental and control group regarding their background factors

Background factors	*Experimental Group n = 20*		*Control Group n = 16*		*Chi square*
	No	*%*	*No*	*%*	
Age					
- 31-45 years	6	30	3	19	1.03
- 46-60 years	8	40	9	56	(p=0.59)
- 61-75 years	6	30	4	25	NS
Sex					0.007
- Male	6	30	5	31	(p=0.93)
- Female	14	70	11	69	NS
Marital Status					
- Single	3	15	1	6	5.23
- Married	14	70	7	44	(P=0.07)
- Widowed	3	15	8	50	NS
Educational Status					
- Primary	12	60	1	6	11.6
- Secondary	6	30	11	69	(P=0.01)
- High secondary	2	10	3	19	S
- Graduate	--	--	1	6	
Occupation					
- Skilled manual	2	10	2	13	
- Skilled manual low grade	2	10	4	25	
- Unskilled manual	13	65	4	25	12.3
- Retired	1	5	4	25	(P=0.03)
- Unemployed	2	10	2	12	S

Background factors	*Experimental Group n = 20*		*Control Group n = 16*		*Chi square*
	No	*%*	*No*	*%*	
Religion					0.6
- Hindu	6	30	3	19	(P=0.44)
- Christian	14	70	13	81	NS
Family Income					1.28
- Above poverty line	10	50	11	69	(P=0.26)
- Below poverty line	10	50	5	31	NS

Table 1 reveals the frequency and percentage distribution of cancer patients in the experimental and control group regarding their background factors.

Regarding sex, majority of patients were female in both experimental (70%) and control (69%) group. The obtained chi square 1.03(p=0.59) was not significant. It was inferred that the experimental and control group were comparable regarding sex.

Regarding age, majority of patients were in the age group of 45-60 years both in experimental (40%) and control (56%) group. The obtained chi square 0.007 was not significant.

Regarding marital status, married people were 70% in experimental group and 44% in control group. In control group 50% were widowed. The obtained chi square 5.23 (p=0.07) was not significant.

Regarding education, in experimental group majority were educated up to primary (60%) and in control group (69%) studied up to secondary. The obtained chi square 11.6(p=0.009) was significant.

Regarding occupation, majority of patients were doing unskilled work in experimental group 13(65%).In control group each 4 (25%) were unskilled , semiskilled or retired. The obtained chi square 12.3(p=0.03) was significant.

Regarding religion majority in experimental group 14 (70%) and control group 13(80%) were Christians. The obtained chi square 0.60 (p=0.44) was not significant.

Regarding economical status, 10 (50%) in experimental group and 11 (69%) in control group were above poverty line. The obtained chi square 1.29(p=0.26) was not significant. It was inferred that the experimental and control group were comparable regarding family income.

It was inferred that majority of cancer patients in experimental group were 46 – 60 years, were females, were married, had primary education, had unskilled manual occupation, were Christians and equally distributed as above poverty line or below poverty line.

Also in control group majority of cancer patients were 46- 60 years, were females, were widowed, had secondary education, were Christians, were above poverty line, and were equally distributed as skilled manual low grade, unskilled manual and retired regarding occupation.

The experimental and control group sample were not matched for educational status and occupation.

Figure 3, reveals the frequency and percentage distribution of cancer patients in experimental and control group regarding duration of present illness.

In experimental group majority of cancer patients suffer from cancer less than one year n = 9 (45%).However cancer patients in control group suffered in equal numbers less than 1- 2 years and less than one year. The obtained chi square 2.65 (p=0.27) was not significant.

It was inferred that the experimental and control group were comparable regarding duration of present illness.

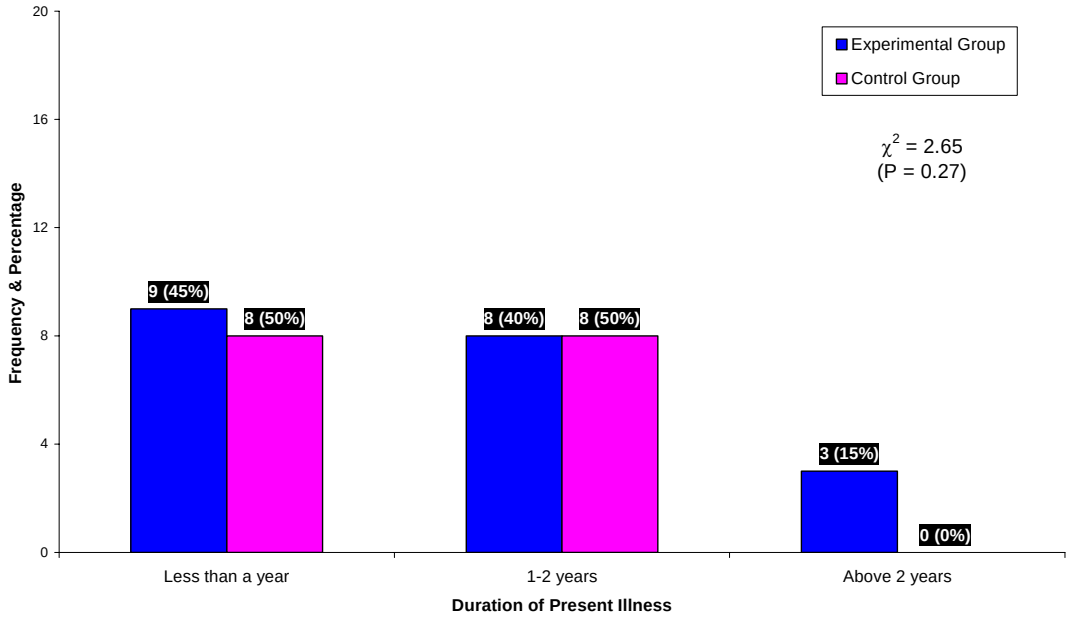


Fig.3: Frequency and percentage distribution of cancer patients in experimental group and control group regarding duration of present illness

Figure 4 reveals the frequency and percentage distribution of cancer patients in experimental and control group regarding treatment received. In experimental group majority of cancer patients were receiving only analgesics n = 19 (95%). However, majority of cancer patients in control group were also receiving only analgesics n=15(94%). The obtained chi square 0.03 (p=0.87) was not significant.

It was inferred that the experimental and control group were comparable regarding present treatment received.

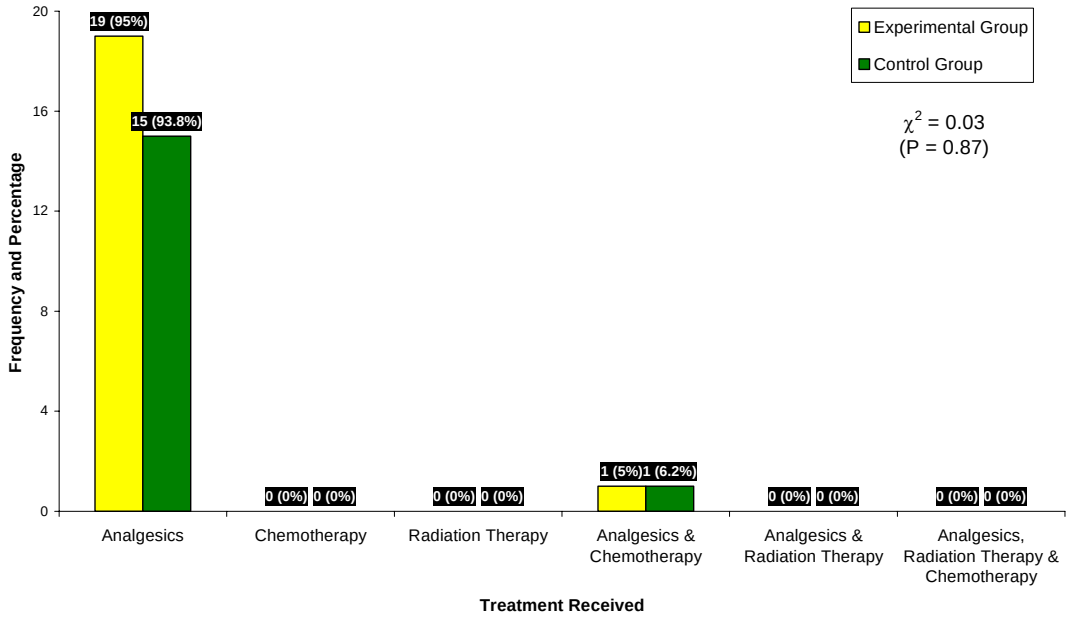


Fig.4: Frequency and percentage distribution of cancer patients in experimental group and control group regarding present treatment received.

Figure 5 reveals the frequency and percentage distribution of cancer patients in experimental and control group regarding their previous experience with cancer patients. Majority of patients in experimental group n = 11 (55%) and control group n = 12 (75%) had seen and heard about patients with cancer. The obtained chi square 2.45 (p=0.29) was not significant.

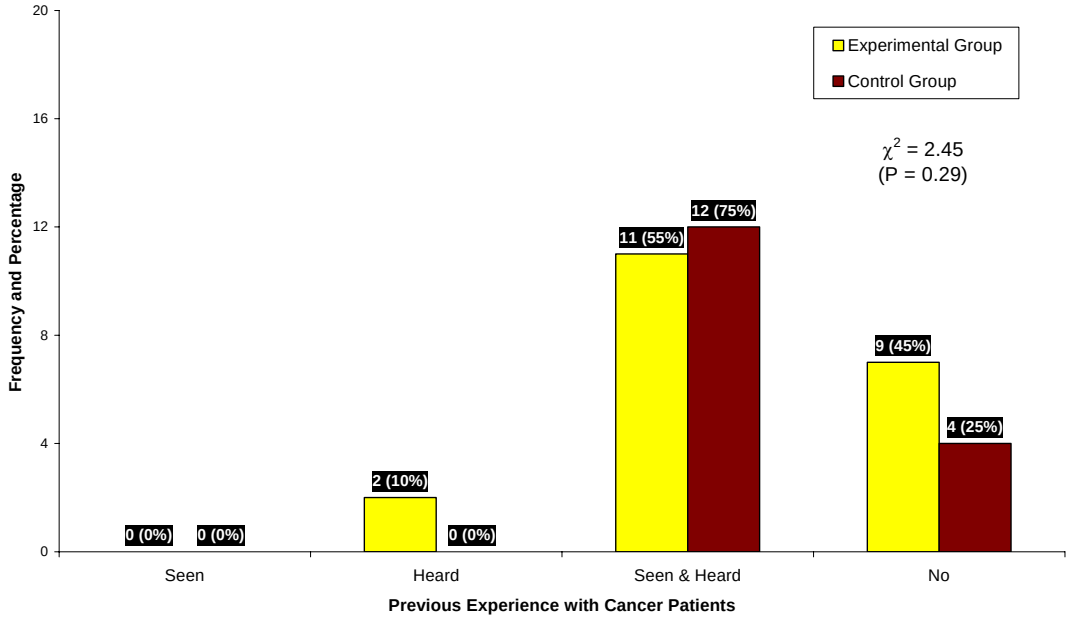


Fig.5: Frequency and percentage distribution of cancer patients in experimental group and control group regarding previous experience with cancer patients.

Figure 6 reveals the frequency and percentage distribution of cancer patients in experimental and control group regarding their experience with alternative pain relievers. All the patients in experimental and control group have tried alternative pain relievers. Majority in experimental group n =13 (65%) and control group n = 14 (88%) have tried with balm. The obtained chi square 2.91 (p=.23) was not significant.

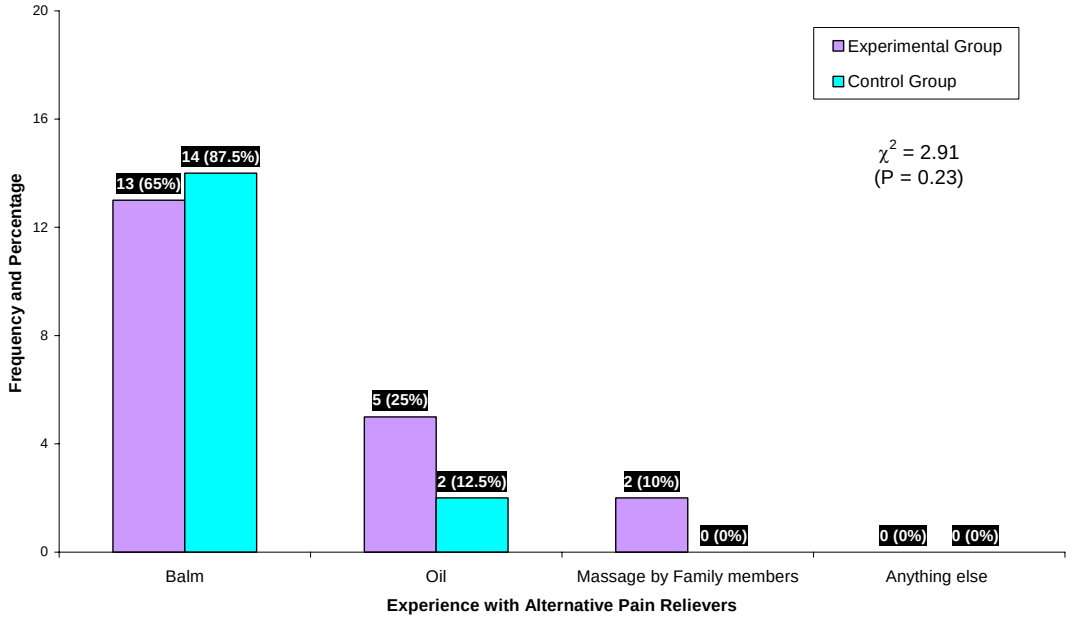


Fig.6: Frequency and percentage distribution of cancer patients in experimental group and control group regarding their experience with alternative pain relievers.

Figure 7 reveals the frequency and percentage distribution of cancer patients in experimental and control group regarding their diagnosis, 6(30%) of patients in experimental group and 6(37.5%) in the control group were diagnosed with head and neck cancer and 3 (15%) in experimental group and 1(6%) in control group were having lung cancer. Gastro intestinal tract cancers were present in 5(25%) of patients in experimental group and 4 (25%) of patients in control group and 4 (20%) of experimental group and 5 (31%) in control group were experienced with reproductive tract cancers.

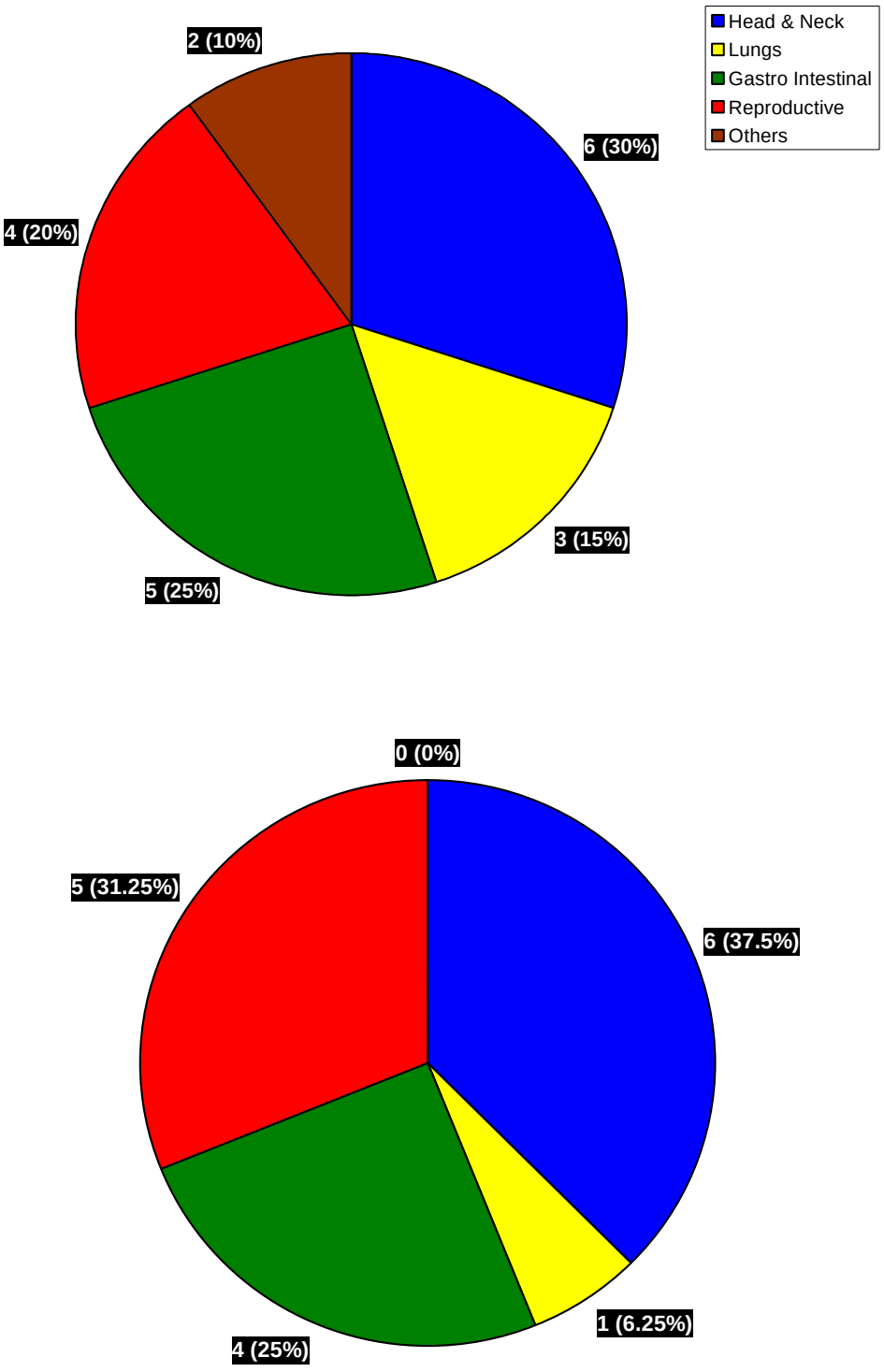


Fig.7: Frequency and percentage distribution of cancer patients in experimental group and control group regarding diagnosis.

SECTION – II: DATA ON PAIN AMONG CANCER PATIENTS IN EXPERIMENTAL AND CONTROL GROUP.

For the purpose of the study the following null hypothesis was stated,

H_{01} : There will be no significant difference in pain before and after foot massage among patients with cancer in experimental and control group.

H_{02} : The mean difference in pain among cancer patients between the experimental and control group will be equal.

TABLE – 2

Mean, SD, Mean difference, and "t" value on pain before and after foot massage in experimental group

Test	*Mean*	*Standard Deviation*	*Mean Difference*	*"t" value (P)*
Pre Test	7.55	1.39	1.54	12.815 (P < 0.001) S
Post Test	3.15	1.69		

S – Significant

Table 2 reveals the effectiveness of foot massage by comparison of pain before and after foot massage in experimental group. The mean pre test pain 7.55 (SD = 1.39) was higher than mean post test pain 3.15 (SD = 1.69) in experimental group. The obtained "t" value, t = 12.815 (P < 0.001) was significant. The mean pain after foot massage was significantly less than the mean pain before foot massage in experimental group. Therefore null hypothesis H01 was rejected.

It was inferred that cancer patients in experimental group had significant reduction pain after foot massage and it was found to be very effective.

Figure 8 shows the mean, standard deviation and 't' value of pre and post tests pain in the experimental group and control group.

The mean pre test pain M = 7.55(1.39) among cancer patients in experimental group were little higher than the control group M = 6.88(1.36). There was no significant difference in mean pre test pain among control and experimental group (t= 1.459; p=0.154).

After 20 minutes, the mean post test-I pain M = 7.20(1.36) among experimental group and was little higher than the control group M = 6.38(1.45). There was no significant difference in mean post test-I pain among control and experimental group after first day of foot massage (t= 1.75; p=0.09).

After four days, the mean post test-II pain M =5.65(1.23) among experimental group and was little less than control group M =6.13(1.5). There was no significant difference in mean post test-II pain among control and experimental group after fourth day of foot massage (t=-1.046: p=0.3).

After seven days, mean post test-III pain M = 3.15 (1.69) among experimental group and was lesser than in control group M =6.06 (2.02). There was significant difference in mean post test-III pain among experimental group than the control group (t= -4.712; p < 0 .001).

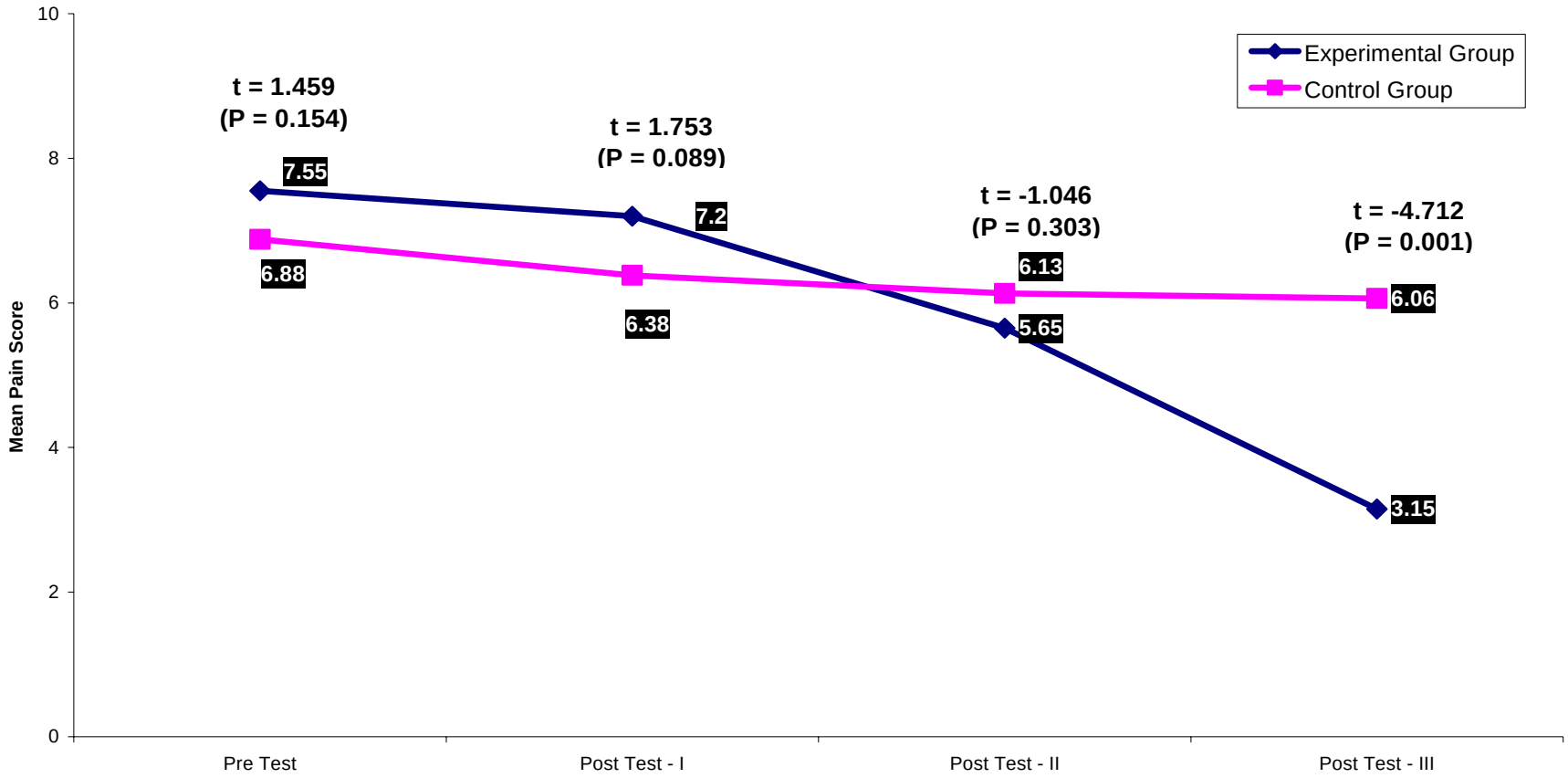


Fig. 8: Mean pain among experimental and control group before and after foot massage.

Figure 9 shows the mean difference between each observations and 't' values of pain in relation to foot massage among the clients with cancer in experimental and control group .

The mean difference between pre procedural pain and post procedural pain on day 1 was 0.35 in experimental group and 0.5 in control group t =-0.74 (p=0.467). There was no significant reduction in pain among experimental group in relation to foot massage on day 1.

The mean difference between post procedural pain on day 1 and post procedural pain on day 4 was 1.55 in experimental group and 0.25 in control group .There was significant decrease in cancer pain among experimental group in relation to foot massage t = 4.44(p=0.001).

The mean difference between post procedural pain on day 4 and post procedural pain on day 7 was 2.5 in experimental group and 0.06 in control group. There was significant decrease in cancer pain among experimental group in relation to foot massage t=6.88 (p=0.001).

The mean difference between post procedural pain on day 1 and post procedural pain on 7 was 4.05 in experimental group and 0.3 in control group .There was significant decrease in cancer pain among experimental group in relation to foot massage t= 8.4(p=0.001)

The mean difference between pre procedural pain and average post procedural pain was 2.22 in experimental group and 0.69 in control group. There was significant decrease in cancer pain among experimental group in relation to foot massage t = 5.38 (p=0.001). Therefore null hypothesis H_{02} was rejected.

It was inferred that there was significant difference in mean difference between pain in relation to foot massage among the patients with cancer in experimental and control group.

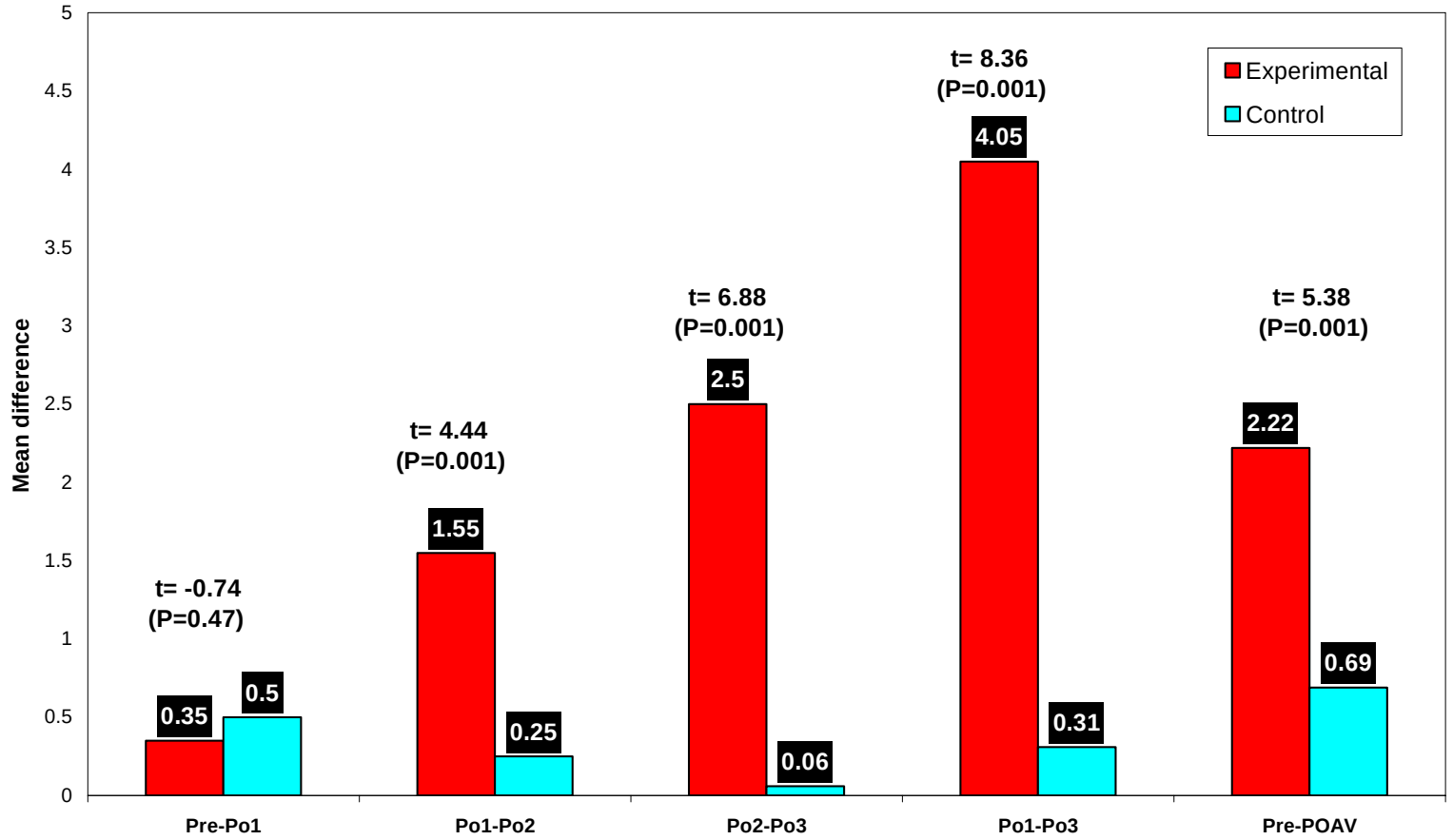


Fig.9: mean difference between each observations and 't' values of pain among experimental and control group.

SECTION – III: DATA ON ASSOCIATION BETWEEN THE MEAN DIFFERENCES IN PAIN AND SELECTED FACTORS AMONG CANCER PATIENTS IN EXPERIMENTAL GROUP

For the purpose of the study the following null hypothesis was stated,

H_{03} : There will be no significant association between mean difference in pain and selected factors among patients with cancer in experimental group.

Table – 3

Linear regression regarding association between mean difference in pain and background factors among cancer patients in experimental group

Test	*Standardized co-efficient (beta)*	*"t" value*	*Significance (P)*
Age	-0.528	-1.138	0.29 (NS)
Sex	0.112	0.267	0.79 (NS)
Marital Status	-0.128	-0.306	0.77 (NS)
Educational status	-0.117	-0.232	0.82 (NS)
Occupation	0.212	0.552	0.59 (NS)
Religion	0.253	0.649	0.54 (NS)
Family income	-0.072	-0.116	0.91 (NS)
Duration of illness	0.039	-0.095	0.93 (NS)
Treatment received	0.0370	-0.807	0.44(NS)

Table 3 reveals the association between the mean difference in pain and background factors among cancer patients in experimental group.

The obtained “t” values regarding selected background factors such as age 1.219 (p=0.29); sex 0.267(p=0.79); marital status -0.306 (p=0.77); educational status -0.232 (p=0.82); occupation 0.522 (p=0.59); religion 0.649 (p=0.54); family income -0.116 (P=0.91);duration of illness 0.095 (P = 0.93) and treatment received -0.807 (P = 0.44) were not significantly (P > 0.05) associated with mean difference pain among cancer patients in experimental group. The reduction in post test pain was independent of these selected factors. Therefore null hypothesis H_{03} was accepted.

It was inferred that foot massage was independently effective of all selected background factors in reducing pain among cancer patients.

CHAPTER – V

SUMMARY, FINDINGS, DISCUSSION, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

The essence of any research project is based on study findings, limitations, interpretation of the result and recommendations that in-corporate the study implications. It also gives meaning to the results obtained in this study.

SUMMARY

The prime aim of the study was to assess pain before and after foot massage among cancer patients.

The objectives of the study were,

1. To assess the pain before and after foot massage among patients with cancer in experimental and control group.
2. To compare the mean difference in pain among cancer patients between the experimental and control group.
3. To test the association between the mean difference in pain and selected factors among patients with cancer in experimental group.

The study attempted to examine the following research hypothesis

H_1 : There will be a significant difference in pain before and after foot massage among patients with cancer between experimental and control group.

H_2 : There will be a significant difference in the mean difference of pain among cancer patients between the experimental and control group.

H_3 : There will be a significant association between mean difference in pain and selected factors among patients with cancer in experimental group.

The review of literature enabled the investigator to develop conceptual framework, tool and methodology for the study. Literature review was done as follows: studies related to pain in cancer, studies related to foot massage in general, studies related to foot massage and pain among cancer patients.

The conceptual framework adopted for the present study was based on the gate control theory Melzack and Wall (1965). This model helped the investigator to assess the effect of foot massage on pain among patients with cancer.

The present study was a quasi experimental, repeated measure time series with control group design. Independent variable in this study was foot massage and dependent variable was pain in cancer. Associate variable for this study were background factors and disease factors.

The tool developed and used for the data was an interview schedule. Numerical rating scale was used to assess pain. The content validity of the tool was established by six experts. The reliability of the tool was established by inter-rater reliability computed reliability co efficient r = 0.98 was high. The pilot study was conducted in Alphonsa Pain and Palliative Centre, and the study was found to be feasible.

The main study was conducted in Alphosa Pain and Palliative Centre, Murikasseri, Idukki (Dt). Prior permission from the authorities was sought and obtained. Individual informed

consent was taken from study sample. The study samples were selected by purposive sampling method based on sample selection criteria.

A total of 36 patients (20 experimental group, 16 control group) were selected. First data were collected from the control group and then followed by experimental group. Pre-test on pain was measured. The intervention foot massage was given 20 minutes every day for seven consecutive days among experimental group. Post test pain was measured on 1st, 4th, and 7th day. The evidence of intervention and pain score were marked in a grid. Intervention was done at the bedside. All the patients received their routine care. The collected data were analyzed and interpreted based on objectives using SPSS package (Version 10) at 0.05 level of significance.

CHARACTERISTICS OF STUDY SAMPLES

Majority of cancer patients in experimental group were 46 – 60 years 8(40%),were females 14(70%) ,were married 14(70%),had primary education 12(60%), had unskilled manual occupation 13(65%), were Christians 14(70%), were equally distributed as above poverty line or below poverty line 10(50%),suffering from cancer for less than a year 9(45%),receiving analgesics at present 19(95%),had seen and heard about cancer patients 11(55%) and tried balm as an alternative pain relief 13(65%).

Also in control group majority of cancer patients were 46- 60 years 9(56%), were females 11(69%), were widowed 8(50%), had secondary education 11(69%), were Christians 13(81%), were above poverty line 11(69%), were equally distributed as skilled manual low grade, unskilled manual and retired regarding occupation 4(25%),suffering from cancer for 1 – 2 years 8(50%),receiving analgesics at present 15(93.8%),had seen and heard about cancer patients 12(75%)and tried balm as an alternative pain relief 14(87.5%).

FINDINGS

The major findings of the study presented under following headings based on the objectives of the study.

Objective – 1: To assess the pain before and after foot massage among patients with cancer in experimental and control group.

- There was a significant difference between the mean pain score before and after foot massage in experimental group, t = 12.8 (P < 0.001).
- There was a significant difference in mean post test III pain score t = -4.7 (P < 0.001) between experimental group and group after foot massage.

Objective – 2: To compare the mean difference in pain among cancer patients between the experimental and control group

- There was a significant difference in mean difference between post procedural pain on day 1 and post procedural pain on day 4, t = 4.44 (P = 0.001), post procedural pain on day 4 and post procedural pain on day 7, t = 6.88 (P = 0.001), post procedural pain on day 1 and post procedural pain on day 7, t = 8.4 (P = 0.001) and pre procedural pain and average post procedural pain t = 5.38 (P = 0.001) in relation to foot massage among the clients with cancer in experimental and control group.

Objective – 3: To test the association between the mean difference in pain and selected factors among patients with cancer in experimental group.

- There was no significant association between the mean difference in pain and the selected variables such as age t = -1.14 (P > 0.05); sex t = 0.027 (P > 0.05); marital status t = -0.30 (P > 0.05); education status t = -0.23 (P > 0.05); occupation

t = 0.55 (P > 0.05); religion t = 0.64 (P > 0.05); family income t = -0.12 (P > 0.05); duration of illness t = -0.09 (P > 0.05);treatment received t = -0.81 (P > 0.05) among experimental group.

DISCUSSION

The results of the study were discussed based on the finding of the study.

Findings on pain among cancer patients in experimental and control group in relation to foot massage.

- There was a significant difference between the mean pain before and after foot massage in experimental group, t = 12.8 (P < 0.001).
- There was a significant reduction in mean post test pain t = -4.7 (P < 0.001) in experimental and control group after foot massage.

The above findings were supported by the related studies conducted by, Molly (2007) reported that Post test on 3rd day shows that only 6% patients with cancer had severe pain and majority of them (70%) had moderate pain, Shiow-Luan, et.al., (2005) demonstrated that less pain (*P* < .05) was reported by post operative patients with gastric and hepatocelluar cancer, Stephenson.N.L. (2001) noted a significant decrease in pain for patients with breast cancer after foot massage and Grealish.L.,Lomasney A,Whiterman.B (2000) reported a significant reduction in pain after 10 minutes of foot massage for 3 days (t=-5.751; P < 0001).

Findings on the mean difference in pain among cancer patients between the experimental and control group

- There was a significant difference in mean difference between post procedural pain on day 1 and post procedural pain on day 4, t = 4.44 (P = 0.001), post procedural pain on day 4 and post procedural pain on day 7, t = 6.88 (P = 0.001),

post procedural pain on day 1 and post procedural pain on day 7, t = 8.4 (P = 0.001) and pre procedural pain and average post procedural pain t = 5.38 (P = 0.001) in relation to foot massage among the clients with cancer in experimental and control group.

The above finding was supported by the related study conducted Grealish.L., Lomasney A, Whiterman.B (2000) where pre treatment pain score for massage session was 25.1 + 21.7mm ,which decreased to 15.3 + 19.0mm (t = 5.979; p = 0.001)immediately after massage resulting in a mean difference of 9.8 mm.

Findings on association between the mean difference in pain and selected factors among patients with cancer in experimental group.

- There was no significant association between the mean difference in pain score before and after foot massage and the selected factors such as age t = -1.14 (P > 0.05); sex t = 0.027 (P > 0.05); marital status t = -0.30 (P > 0.05); education status t - -0.23 (P > 0.05); occupation t = 0.55 (P > 0.05); religion t = 0.64 (P > 0.05); family income t = -0.12 (P > 0.05); duration of illness t = -0.09 (P > 0.05); treatment received t = -0.807 (P > 0.05) among experimental group.

.

IMPLICATION

The findings of the study have the following implications in nursing.

Implications for Nursing Practice

- Foot massage is an effective measure to block the pain pathway. Nurse should effectively use this measure to alleviate cancer pain.
- Foot massage helps in reducing the need and frequency of administration of analgesics.
- Foot massage promotes sleep and comfort.

- Nurses can plan the goal of nursing management and enhance the nurse patient relationship and sense of well being to the patient through the development of mutually agreeable goals.
- It is an effective means of communication which provides physical contact in a very acceptable way within the Indian culture.
- Foot massage can be taught to the loved ones who are caring for cancer patients in terminal stage.

Implications in Nursing Education

- Complimentary therapies like foot massage need to be included in the curriculum and practiced.
- Nurse educators should provide adequate training to the nursing students regarding foot massage.
- In service education program should be conducted for nursing personnel and help nurses to gain knowledge on reduction of pain through foot massage.

Implications in Nursing Research

- Study will be valuable reference and pathway for further researchers.
- The findings of the study would help to expand the scientific body of professional knowledge upon which further researches can be conducted.

LIMITATIONS

The study had following limitations,

- Random selection was not done.
- Intervention was given only for 7 days.
- Each procedure takes 20 minutes, consuming the nursing hours.
- Study was done on limited sample.
- Experience level of investigator.

RECOMMENDATIONS

- Randomized controlled trial can be done.
- Similar study can be conducted for a larger group.
- Effect of foot massage for a prolonged period can be studied.

CONCLUSION

The following conclusion was drawn from the following study.

The cancer patient in the experimental group had reduction in pain after foot massage. So in addition to the pharmacological treatment foot massage can be used for managing pain among cancer patients.

The future of this field of nursing science promises to be one of the rapid significant growths. The result of which will directly influence patient care in the aspect of pain management as that of “evidence based nursing care”.

REFERENCES

TEXT BOOKS

1. Anne. E. Belcher (1992) "Cancer Nursing", Mosby, Inc. Missouri.
2. Basvanthappa, B.T (2006), "Nursing Research", Jaypee Brothers, Bangalore.
3. Brunner and Siddarth (2008), "Text of Medical Surgical Nursing", 11th Edition, Wolters Kluwer India Pvt.Ltd., New Delhi
4. Carol Taylor, Carol Lillis, Prisalla Lemone (2005), "Fundamentals of Nursing", Wolter S, Kluwer Health (India), Pvt.Ltd., New Delhi, Page. No, 1193-1227.
5. Christine Maskownski, (1997) "Oncology Nursing: An essential guide for patient care",W.B. Saunders company, Philadelphia.
6. Christine Mia Skowski, Patrica, Buchsel (1999), "Oncology Nursing", 1st edition, Mosby.Inc, Missouri, Page.No:277-287.
7. Edward. A. Shipton, (1999), "Pain acute and chronic", 2nd edition, WH Waters and University Press, Johannesburg.
8. Jim Cassidy, Donald Bissett, Roy A.J. Spence (2002), "Oxford hand book of oncology", Oxford University, Press, New Delhi
9. Lewis et al (2007), "Text book of medical surgical nursing", 8th edition, Mosby publications.
10. Mahajan (1991), "Methods of biostatistics", New Delhi, Jaypee brothers, Medical Publishers Pvt.Ltd.,
11. Nora Kearney, Alison Richard son, Paola Di Giulio (2000), "Cancer Nursing practice", 1st edition, Harcocert Publishers Limited.

12. Rose. A. Gates, Regina M. Fink, (1997), "Oncology Nursing secretes", 1st edition, Jaypee brothers medical publishers, New Dehli, Page.No:406-411.

13. Shirley.E. OTTO, (2001), "Oncology Nursing", 4th edition, Mosby, Inc. Missouri.

14. Sundar Rao (1997), "An introduction to Biostatics", 3rd edition, Prentice hall of India Pvt.Ltd.,

15. Wood druff R (1999), "Cancer pain", 2nd edition, Asperula, Pvt. Ltd, Melbourne.

JOURNALS

1. Buckley J. (2002), "Massage and Aroma therapy massage: Nursing arts and science", International journal of palliative Nursing 8: 276-280.

2. Cohen E; et al (2008), "Pain beliefs and pain management of oncology patients", Cancer Nursing, 31(2):1-8

3. costantini M (2009), "Prevalence, distress, management and relief of pain during last 3 months of cancer patients life. Results of an Italian follow back survey", Annals of oncology, 20(4)729-35.

4. Currin J; Meister EA (2008), "A hospital-based intervention using massage to reduce distress among oncology patients", Cancer Nursing. 31(3):214-21

5. Deimling T. Gary, Bowman, F. Karen, Wagner. J. Louis (2007), "The effects of cancer related pain and fatigue on functioning of older adult long term cancer survivors", Cancer Nursing, 30(6) 421-433.

6. Dotting. D (1997) , "Review of the literature on the effectiveness of Reflexology", Therapeutic nurse midwifery, 3(5), 123-130.

7. Edrington et al., (2007), “A review of literature on the pain experience of Chinese patients with cancer”, Cancer Nursing, 30(5), 335- 346.

8. Gerlish L. Lamasney A, et.al., massage : “A Nursing Intervention to modify the distressing symptoms of pain and nausea in patients hospitalised with cancer”, Cancer Nursing 23 (3):237-242.

9. Green CR, Monague L and Hart-Johnson TA(2009), “Consistent and break through pain in diverse advanced cancer patients: a longitudinal examination”, Journal of pain symptom management, 37 (5) 831-47

10. Griffiths (1996) “Reflexology complementary therapies in nursing and midwifery”, cancer Nursing 2(1), 13-16.

11. Hayes J, Cox.C, (1999), “Immediate effects of five minute foot massage on patients in critical care”, Intensive critical care nursing,15(2):77-82.

12. Hazard Velleranol et al., (2007), “Knowledge of and Barriers to pain Management”, Cancer Nursing, 30(1):31-37.

13. Hodgson H, et al., (2000) “Does Reflexology impact on cancer patients quality of life”, Nursing standard, 14(31):33-38.

14. Hulme J, Waterman H & Hiller NF (1999), “The effect of foot massage on patients perception of care following laparoscope sterilization as day are patients”, Journal of Advanced nursing, 30(2), 460-468.

15. Jamal A, Ram C et al., (2004) “Cancer Statistics”, Cancer Journal Clinics, 54, (8), 29-30.

16. Joa Chim, Gloria (1983), “How to give great foot massage”, Geriatric Nursing 29-30.

17. Lee YM, Sohng KY (2005), "The effects of foot reflexology on fatigue and insomnia in patients suffering from coal workers pneumoconiosis",Taehan kanho hakhoe chi 35 (7), 1221- 8.

18. Moly et al., (2008), "Easing Cancer pain and anxiety", Nightingale Nursing times, 10:36-42.

19. Myastakidoce.K. (2005), "Pain and desire for hastened death in terminally Ill cancer patients", Cancer Nursing 28(4), 318-324.

20. Quattrin, et.al., (2006) "Use of reflexology foot massage to reduce anxiety in hospitalized cancer patients in chemotherapy treatment: methodology and outcomes", Journal of nursing management,14(2)96-105.

21. Shiow-Luan, et.al., "Effects of Reflexotherapy on Acute Postoperative Pain and Anxiety Among Patients With Digestive Cancer", Cancer Nursing 31(2),109-115

22. Stephenson NL, Wainrich S, Tavakoli A, (2001) "The effects of foot reflexology on anxiety and pain in patients with cancer and lung cancer", Oncology nursing forum, 27: 67-72.

23. Tsai SC et.al., (2009), "Cancer pain as the presenting problem in emergency departments; incidence and related factors", Support care cancer 4(7)

24. Vaisali jas (2007), "Nurses Knowledge about pain management", Nightingale Nursing Times, 3(3):60.

25. Vickers. A (1996), "Complementary therapies in palliative care", European Journal of palliative care, 3:150-153.

26. Wang M.Y et al., (2008), "The efficiency of reflexology: Systematic review" Journal of advanced nursing 2(5): 512-520.

27. Wilkison Susie, Barnes Kelly, Storney Lestey (2008), “Massage for symptom relief in patients with cancer: Systematic review’, Journal of Advanced Nursing 63(5): 430-439.

28. Williamson.J., et.al., “Randomised controlled trial of reflexology for menopausal symptoms”, An international journal of obstetrics and Gynacology 109(9), 1050-55

29. Xavier Regina, Premkumar Beulah (2008), “A quasi experimental study to determine the effectiveness of reflexology in reducing pain in specific urology conditions of patients admitted In U-ward, CMC, Vellore”, Nightingale Nursing Times, 11: 24-27.

UNPUBLISHED THESIS

1. Devi.K, " A study on pain among cancer patients before and after hypnosis in selected hospital,Dindigul district’’,March 2009.

2. Sheeba.C, " Assessment of selected acute symptoms experienced by cancer patients and fesibility of stuctured teaching programme on symptom managenment for primary caregivers of cancer patients receiving palliative home care in and around Vellore", March 2007.

3. Kalyani V.C, "Effectiveness of music therapy upon pain, anxiety and selected physiological variables of cancer patients at Apollo Hospitals, Chennai’’, March 2006.

4. Abraham P.S, "Effectiveness of reflexology in reducing chemotherapy induced nausea and vomiting in CMC, Vellore", March 2006

SECONDARY SOURCES

1. www.google.com
2. www.medline.com
3. www.medscape.com
4. www.nursing center.com
5. www.pubmed.com
6. www.science.com
7. www.yahoo.com

APPENDIX – I

LETTER SEEKING PERMISSION TO CONDUCT THE RESEARCH STUDY

From,
30083602
II year M. Sc (Nursing),
Annai J. K. K. Sampoorani Ammal college of Nursing,
Komarapalayam- 638183.
Namakkal dt

To,
The medical superintendent,
Pain and Palliative Centre,
Alphonsa Hospital,
Murikkassery p.o,Idukki dt ,
Kerala.

Through,
The Dean,
Annai J. K. K. Sampoorani Ammal college of Nursing,
Komarapalayam- 638183.

Sub: Seeking permission to conduct the research study.

Respected Sir,

I am 30083602, II year M. Sc. Nursing student of Annai J.K.K.Sampoorani Ammal college of Nursing, Komarapalayam, under the TamilNadu Dr. MGR Medical University, Chennai.

I would like to bring to your kind notice that as a partial fulfillment of M.Sc. Nursing programme, I am conducting "A quasi experimental study to assess the effectiveness of foot massage on pain among patients with cancer in Alphonsa hospital, Murikkassery, Idukki Dt, Kerala"

I would like to conduct this research study in your esteemed Hospital. Hence I request you to kindly grant permission for the same.

Thanking you,

Date: 01-09-2009. Yours faithfully,
Place: Komarapalayam.

(30083602)

APPENDIX – II

✆ 04868 : 260115

Alphonsa Pain And Palliative Care Centre

MURICKASSERY - 685 604
IDUKKI - KERALA.

Date 22.9.09.

From
Dr. Sagena M.S.
Doctor in charge,
Alphonsa Pain & palliative care centre
Murickassery.

To

This is to inform you that you are permitted to conduct research study in our palliative care centre for one month.

Dr. Sagena M.S.

ALPHONSA PAIN AND P... MURICKASSERY

APPENDIX – III

LETTERS SEEKING PERMISSION FOR CONTENT VALIDITY

From,

30083602
II year M. Sc (Nursing),
Annai J. K. K. Sampoorani Ammal college of Nursing,
Komarapalayam- 638183.
Namakkal dt

To,

Through
The Dean
Annai J.K.K.Sampoorani Ammal college of Nursing
Komarapalayam – 638183.
Namakkal (DT).

Respected Sir/Madam,

(Sub: Requisition for opinion and suggestion of experts for content validity).

I am 30083602, II Year M.Sc (N) student of medical surgical Nursing specialty studying at Annai J.K.K.Sampoorani Ammal college of Nursing, Komarapalayam.

I have selected the following topic for research "A quasi experimental study to assess the effectiveness of foot massage on pain among patients with cancer in Alphonsa hospital, Murikkassery, Idukki Dt, Kerala" in partial fulfillment of the requirement for the award of the Degree of Master of Nursing under the Tamilnadu Dr.MGR Medical University, Chennai.

Here with I have enclosed the tool for its content validity and request you kindly examine the tool and give your valuable opinion and suggestions.

Thanking you

Date: Yours sincerely,

Place: Komarapalayam. (30083602)

APPENDIX – IV

LIST OF EXPERTS

1. Mrs .JESSIE SUDARSANAM, M.Sc., (N),
   HOD, Medical Surgical Nursing
   Annai JKK Sampoorani Ammal College of Nursing,
   Komarapalayam.

2. Miss.SHOBANA .J ,M.Sc(N),
   Asst. Professor ,Medical Surgical Nursing
   Annai JKK Sampoorani Ammal College of Nursing,
   Komarapalayam.

3. Dr.P.SUTHAKAR,
   Oncologist,
   HCG cancer centre,
   Erode.

4. Mr.R FERDINAND, MPT
   Asst. Professor,
   JKKMMRF College of Physiotherapy
   Komarapalayam.

5. Ms.MEENA,
   Lecturer,
   JKKMMRF College of Physiotherapy
   Komarapalayam.

6. Mrs.THENMOZHI,
   Lecturer,
   JKKMMRF College of Physiotherapy,
   Komarapalayam.

APPENDIX – V

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of 30083602, II Year M.Sc (N) student of Medical Surgical Nursing speciality studying at Annai J.K.K.Sampoorani Ammal college of Nursing, Komarapalayam, who is undertaking the following study "A quasi experimental study to assess the effectiveness of foot massage on pain among patients with cancer in Alphonsa hospital, Murikkassery, Idukki district, Kerala".

Place: Signature of the Expert

Date: Designation

APPENDIX – VI

Ph : 0091 - 04288 - 260032, 260588, Fax : 266760

J.K.K.MUNIRAJAHH MEDICAL RESEARCH FOUNDATION

COLLEGE OF PHYSIOTHERAPY

Ethirmedu, **B.Komarapalayam - 638 183.** Namakkal Dist, Tamilnadu, India.

Rtn. PHF. **Dr. J.K.K.MUNIRAJAHH** M.Tech., (Bolton)
Correspondent

D.KANNAN M.P.T (Neuro), M.Sc (Psy).,MIAP
Principal

18.09.2009

CERTIFICATE

This is to certify that **30083602** II Year M.Sc Nursing has been taught the Foot Massage Technique in department of physiotherapy under the supervision of **Mrs.S.KOKILAVANI,** B.P.T. MIAP., H.O.D. of Exercise Therapy and Massage from **07.09.2009 to 11.09.2009**.

S. kokila

H.O.D.
Exercise Therapy & Massage

PRINCIPAL

PRINCIPAL,
COLLEGE OF PHYSIOTHERAPY,
J.K.K. Munirajahh Medical Research Foundation
KOMARAPALAYAM-638 183,
TAMIL NADU, INDIA.

APPENDIX – VII

STRUCTURED SCHEDULE ON PAIN AND BACKGROUND DATA AMONG PATIENTS WITH CANCER

SECTION A: BACKGROUND FACTORS

Code No: _____

Instruction

This section seeks information regarding background factors of the client who are diagnosed as cancer. The interviewer will ask questions and get one by one. Please tick mark on the appropriate box.

1. Age in years

a) 31 - 45yrs ☐

b) 46 - 60yrs ☐

c) 61 - 75yrs ☐

2. Sex

a) Male ☐

b) Female ☐

3. Marital status

a) Single ☐

b) Married ☐

c) Widowed ☐

d) Divorced ☐

4. Educational status

a) Primary ☐
b) Secondary ☐
c) Higher secondary ☐
d) Graduate ☐
e) Post graduate ☐
f) Illiterate ☐

5. Occupation

a) Professional worker(Eg: doctor, lawyer ,teacher, manager, scientist/ large scale organization) ☐
b) Skilled manual(Eg: master builder, carpenter ,nurse) ☐
c) Skilled manual (low grade Eg: electrician ,plumber) ☐
d) Semiskilled manual (Eg: driver ,fitter) ☐
e) Unskilled manual (general laborer, barman, porter) ☐
f) Retired ☐
g) Unemployed ☐

6. Religion

a) Hindu ☐
b) Muslim ☐
c) Christian ☐
d) Others ☐

7. Family income

a) Above poverty line(above RS.60,000 per year) ☐
b) Below poverty line(less than RS.60,000 per year) ☐

SECTION – B

DISEASE FACTORS

Instruction

This section seeks information regarding clinical variables such as diagnosis, duration, and medication. The interviewer will check the records of the patient / ask the item and fill the details.

1 .Diagnosis:_____

2. Known duration of illness

a) Less than a year ☐
b) 1-2 years ☐
c) Above 2 years ☐

3. Site/organs or parts involved

---

4. State the present treatment received

a) Analgesics ☐
b) Chemotherapy ☐
c) Radiation therapy ☐
d) Analgesics and chemotherapy ☐
e) Analgesics and radiation therapy ☐
f) Analgesics, chemotherapy and radiation therapy ☐

5. If analgesics (specify as below)

Name	Dose	Route	Frequency

6. Have you ever seen or heard about patients with cancer?

a) Seen ☐
b) Heard ☐
c) Seen and heard ☐
d) No ☐

7. Have you tried any alternative pain relievers?

a) Balm ☐
b) Oil ☐
c) Massage by family members ☐
d) Any other _____ specify ☐

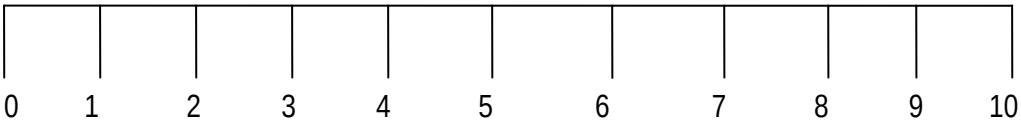
SECTION C

NUMERICAL RATING SCALE ON CANCER PAIN AND FOOT MASSAGE GRID

Instruction

The given scale measures the experience of pain ranging from “0”which means no pain, “10” refers to severe pain. The client is requested to choose a number from 0 to 10 indicating the pain experienced by the patient after two hours of foot massage. The pain score may be entered in the given column. Completion of each foot massage can be marked in the given grid.

No pain Severe pain



GRID

Foot massage grid	Day 1		Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
PAIN	Pre	Post						

APPENDIX – VIII

അർബുദ രോഗികളുടെ വേദനയുടെ തോതും അടിസ്ഥാന വിവരങ്ങളും അറിയാനുള്ള ചോദ്യാവലി

വിഭാഗം എ - അടിസ്ഥാന വിവരങ്ങൾ

നിർദ്ദേശം ക്രമനമ്പർ .....

ഈ ഭാഗം അർബുദ രോഗികളുടെ അടിസ്ഥാന വിവരങ്ങൾ ആവശ്യപ്പെടുന്നു. അഭിമുഖക്കാരി ഓരോ രോഗിയോടും ചോദ്യങ്ങൾ ഓരോന്നായി ചോദിച്ച് അതിനുള്ള മറുപടി തന്നിരിക്കുന്ന ഉചിതമായ കോളത്തിൽ രേഖപ്പെടുത്തുക

1. വയസ്

എ. 31 - 45 വയസ് ☐

ബി. 46 - 60 വയസ് ☐

സി. 61 - 75 വയസ് ☐

2. ലിംഗം

എ. സ്ത്രീ ☐

ബി. പുരുഷൻ ☐

3. വിവാഹ അവസ്ഥ

എ. അവിവാഹിത ☐

ബി. വിവാഹിത ☐

സി. വിധവ ☐

ഡി. വിവാഹ മോചിതൻ ☐

4. വിദ്യാഭ്യാസ യോഗ്യത

എ. പ്രൈമറി ☐

ബി. സെക്കന്ററി ☐

സി. ഹൈയർ സെക്കന്ററി ☐

ഡി. ബിരുദധാരി ☐

എഫ്. നിരക്ഷരർ ☐

5. ജോലി

എ. പ്രൊഫഷണൽ (ഉദാ. ഡോക്ടർ, വക്കീൽ, അദ്ധ്യാപകൻ, മാനേജർ, ശാസ്ത്രജ്ഞൻ / വൻകിട സ്ഥാപനം) ☐

ബി. വിദഗ്ദ്ധ ജോലി (ഉദാ. മുഖ്യനിർമ്മാതാവ്, ആശാരി, നഴ്സ്) ☐

സി. വിദഗ്ദ്ധ ജോലി (താഴ്ന്ന ജോലി ഉദാ. ഇലക്ട്രീഷ്യൻ, പ്ലംബർ) ☐

ഡി. പൂർണ്ണ വൈദഗ്ധ്യം ആവശ്യമില്ലാത്ത ജോലി (ഉദാ. ഡ്രൈവർ) ☐

ഇ. അവിദഗ്ദ്ധ ജോലി (തൊഴിലാളി, ബാർമാൻ, ചുമട്ടുകാരൻ) ☐

എഫ്. ഉദ്യോഗത്തിൽ നിന്നു വിരമിച്ചത് ☐

ജി. തൊഴിൽ രഹിതർ ☐

6. മതം

എ. ഹിന്ദു ☐

ബി. മുസ്ലീം ☐

സി. ക്രിസ്ത്യൻ ☐

ഡി. മറ്റുള്ളവർ ☐

7. കുടുംബവരുമാനം

എ. ദാരിദ്ര രേഖയ്ക്കു മുകളിൽ ☐

ബി. ദാരിദ്ര രേഖയ്ക്കു താഴെ ☐

വിഭാഗം ബി.

രോഗ സംബന്ധമായ ചരിത്രം

നിർദ്ദേശം

ഈ ഭാഗം അർബുദ രോഗികളുടെ രോഗസംബന്ധമായ ചരിത്രം ആവശ്യപ്പെടുന്നു. അഭിമുഖക്കാരി രോഗിയോട് ചോദിച്ച് അല്ലെങ്കിൽ രോഗ സംബന്ധമായ രേഖ പരിശോധിച്ച് ഈ ഭാഗം പൂരിപ്പിക്കുന്നു.

1. രോഗ നിർണ്ണയം

2. രോഗത്തിന്റെ കാല ദൈർഘ്യം

   എ. ഒരു വർഷത്തിൽ താഴെ ☐

   ബി. 1 - 2 വർഷം ☐

   സി. രണ്ടു വർഷത്തിനു മുകളിൽ ☐

3. രോഗം ബാധിച്ച ശരീര ഭാഗം അല്ലെങ്കിൽ അവയവം

   എ. .....

   ബി. .....

   സി. .....

4. ഇപ്പോൾ ലഭിച്ചു കൊണ്ടിരിക്കുന്ന ചികിത്സ വ്യക്തമാക്കുക

   എ. വേദന സംഹാരികൾ ☐

   ബി. കീമോ തെറാപ്പി ☐

   സി. റേഡിയേഷൻ തെറാപ്പി ☐

   ഡി. വേദനാ സംഹാരിയും കീമോതെറാപ്പിയും ☐

   ഇ. വേദനാസംഹാരിയും റേഡിയേഷൻ തെറാപ്പിയും ☐

   എഫ്. വേദനാസംഹാരിയും കീമോതെറാപ്പിയും റേഡിയേഷൻ തെറാപ്പിയും ☐

5. വേദനാ സംഹാരിയാണെങ്കിൽ താഴെ പറയുന്ന ഭാഗം വ്യക്തമാക്കുക

പേര്	അളവ്	പാത	തവണകൾ

6. താങ്കൾ മുമ്പ് അർബുദ രോഗികളെപറ്റി കേൾക്കുകയോ കാണുകയോ ചെയ്തിട്ടുണ്ടോ?

എ. കണ്ടിട്ടുണ്ട് ☐

ബി. കേട്ടിട്ടുണ്ട് ☐

സി. കണ്ടിട്ടും കേട്ടിട്ടുമുണ്ട് ☐

ഡി. ഇല്ല ☐

7. വേറെ എന്തെങ്കിലും വേദനാസംഹാരികൾ നിങ്ങൾ ഉപയോഗിച്ചിട്ടുണ്ടോ?

എ. ബാം ☐

ബി. എണ്ണ ☐

സി. കുടുംബാംഗങ്ങൾ തിരുമ്മി തരാറുണ്ട് ☐

ഡി. വേറെ എന്തെങ്കിലും വ്യക്തമാക്കുക ☐

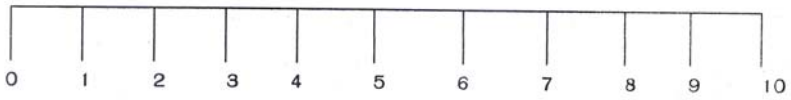
വിഭാഗം സി

അർബുദ രോഗികളുടെ വേദന അളക്കാനുള്ള സംഖ്യാതോതും ഫൂട്ട് മസ്സാജ് ഗ്രിഡും

നിർദ്ദേശം

താഴെ കൊടുത്തിരിക്കുന്ന തോതിൽ അർബുദ രോഗികളുടെ വേദന രേഖപ്പെടുത്തുക. പൂജ്യം മുതൽ പത്ത് വരെയുള്ള തോതിൽ ഫൂട്ട് മസാജ് കഴിഞ്ഞ് രണ്ടു മണിക്കൂറിനു ശേഷം വേദന അടയാളപ്പെടുത്തുക. വേദനയുടെ അളവും ഫൂട്ട് മസ്സാജ് പൂർത്തിയായതും താഴത്തെ ഗ്രിഡിൽ രേഖപ്പെടുത്തുക.

വേദന ഇല്ല — അസഹനീയമായ വേദന



ഗ്രിഡ്

ഫൂട്ട് മസ്സാജ് ഗ്രിഡ്	ഒന്നാം ദിവസം		രണ്ടാം ദിവസം	മൂന്നാം ദിവസം	നാലാം ദീവസം	അഞ്ചാം ദിവസം.	ആറാം ദിവസം	ഏഴാം ദിവസം
വേദന	മുമ്പ്	പിൻപ്						

APPENDIX – IX

PROCEDURE FOR FOOT MASSAGE

DEFINITION

Foot massage is a technique by which both the feet of the recipient are held at various positions, stroked gently and rhythmically to attain a relaxation response.

TOTAL DURATION OF PROCEDURE: 20 minutes

FREQUENCY: Daily for 7 consecutive days

PREPARATION OF ENVIRONMENT

- A conducive room free of noise and foul smell, with adequate temperature and light.
- If in an inpatient ward, a corner bed with adequate screening may be arranged.

EQUIPMENTS AND SUPPLIES

- A comfortable, firm bed/couch with thin mattress, a soft pillow for the head (if needed) and a hard pillow to keep the feet raised.
- A towel long enough to spread below the feet and to cover the feet from the sides.
- A base (unscented) oil such as coconut oil.
- The masseur should take a position to do massage, preferably standing.

PREPARATION OF THE PATIENT

- Get informed consent from the patient and a witness.
- Explain the procedure to the patient.
- Have the patient in loose clothing.
- Have the foot washed and cleaned.
- Explain that one close relative can stay along and learn the technique, so that it can be carried on at home.
- Avoid distraction in the environment.

PROCEDURE

1. Let the patient lie in supine position on the bed with the head on a soft pillow .
2. Raise the feet over a hard pillow allowing the heels to hang loose at the foot end of the bed.
3. Focus on the well being of the patient in an act of unconditional love and caring.
4. Assess both the feet.
5. Look for contraindications such as cuts / wounds / ulcerations / swelling / fractures / toe deformities / extreme arthritic pain.
6. Examine the feet for color, crease indicating pressure, cleanliness and condition of nails and skin.
7. Warm up the palms by rubbing it against each other.
8. Take a little 'oil' in your hand and apply it gently to both feet of the patient spreading it evenly.

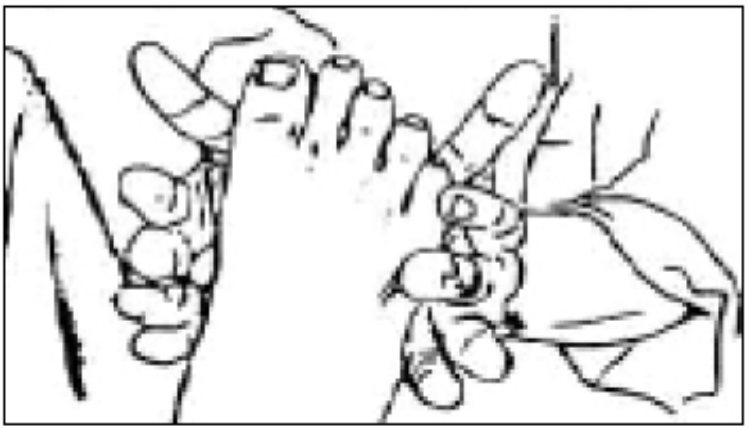
PRELIMINARY STEPS

9. Hold the right foot gently but firmly (15 sec) to let the patient feel your presence and touch before you begin. Left foot is kept covered.

10. Soothe the dorsum and the lateral sides of the foot with gentle strokes (15 secs) using both of one's hands. Cover the right foot and repeat the above steps on the left foot: ending by covering the left foot as well (total 2 minutes).
11. Never take off both one's hands from the foot at once, thus, disrupting the contact one has established.

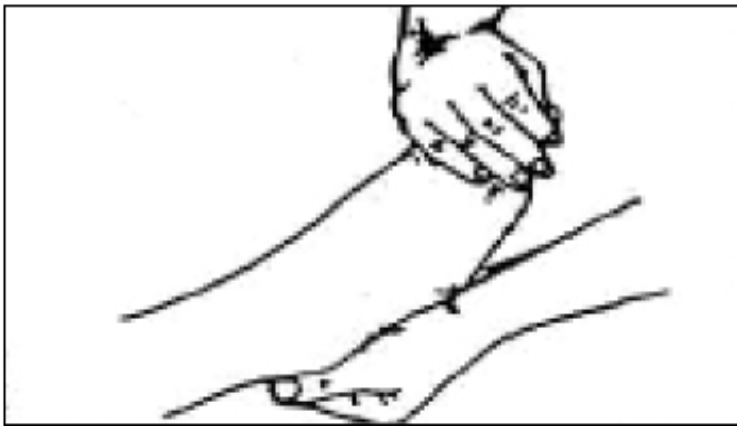
ROCKING STEPS

12. Gently rock the foot from side to side, with the heels of ones hands at the broadest part of the right foot (15 secs.).

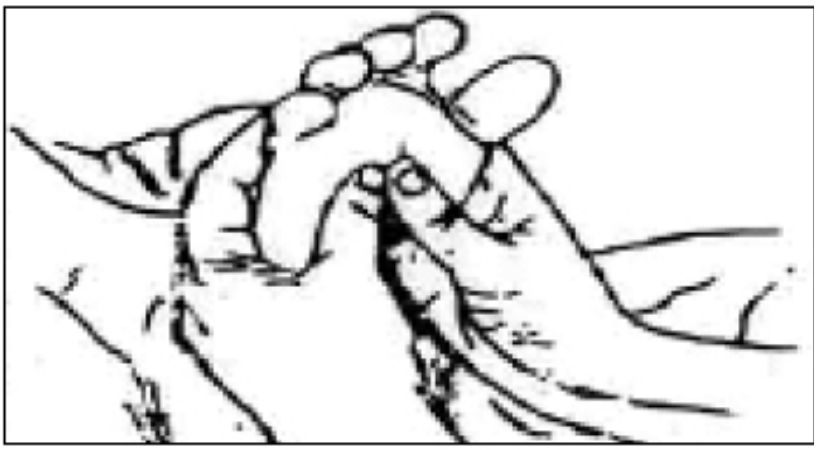


13. Gently rock the foot from side to side With the heels of your hands at the narrow part of the right foot (15 secs.)

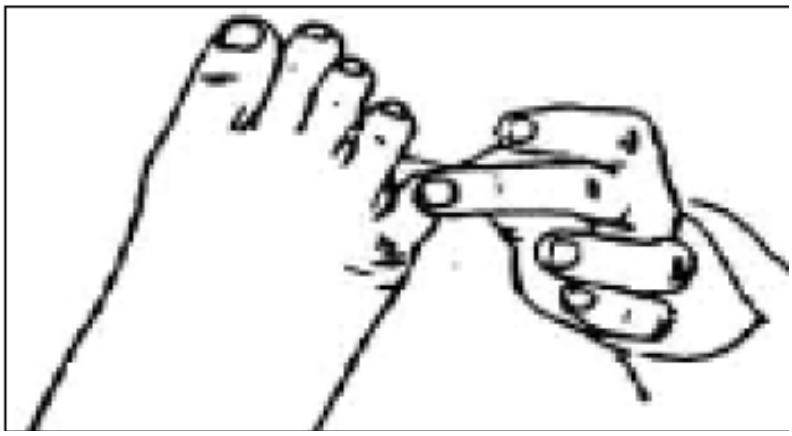
14. Grasp all toes, support the heel and rotate foot three times clockwise and three times in the anticlockwise direction (15 sec.).



15. Hold foot in the position demonstrated, flex it forward and backward three times (15 secs.) watching out for flexibility.
16. Hold foot at broader area from both sides and bring the sides forward and backward three times (15 secs.)



17. Support the base of each toe with one hand with the other rotate each three times in both directions, to check for tension (15 secs.)



18. Repeat the steps 12-17 in the left foot.

SQUEEZING STEPS

19. Expose the right foot, brush and stroke the same from above the ankle to the toes three times and squeeze along both sides of the foot from ankle to toes (15 sec.).
20. Gently rest both hands one by one at various places on the foot by holding and grasping, providing 'warmth' using the following steps: Stretch the sole, soothe the dorsum from ankle to toes medially, laterally and down towards the heel.
21. Reverse the movements (15 secs.). Massage smoothly and evenly. All movements have to be soft, with very gentle pressure.
22. Keep the right foot covered and repeat steps 19-21 on the left foot (2 minutes).
23. Repeat the above steps using a massage-rest-massage sequence on both feet.
24. Follow this up by stroking both the feet with progressively lighter movements (3 minutes) allowing the patient to go into a deeply relaxed state. Finish the procedure by quietly covering both feet with the towel. (The instructor may stay with the patient until she becomes awake.)

ABSTRACT

A quasi experimental study to assess the effectiveness of foot massage on pain among patients with cancer in selected hospital, Idukki District, Kerala was conducted as a partial fulfillment of the requirement for the award of the degree of Master of science in Nursing by 30083602 from Annai JKK Sampoorani Ammal College of Nursing, under The Tamilnadu Dr.MGR Medical University, Chennai, March – 2010.

The objectives of the study were to assess the pain before and after foot massage among patients with cancer between experimental and control group, to compare the mean difference in pain among cancer patients between the experimental and control group and to test the association between the mean difference in pain and selected factors among patients with cancer in experimental group.

The hypothesis formulated were,

H_1 : There will be a significant difference in pain before and after foot massage among patients with cancer between experimental and control group.

H_2 : There will be a significant difference in the mean difference of pain among cancer patients between the experimental and control group.

H_3 : There will be a significant association between mean difference in pain and selected factors among patients with cancer in experimental group.

Literature review was done and organized under following headings: studies related to pain in cancer, studies related to foot massage in general, studies related to foot massage and pain among cancer patients.

The conceptual frame work adopted for the present study was based on the gate control theory proposed in 1965 by Melzack and Wall. The research design used was quasi experimental, repeated measure time series with control group design.

The tool developed and used for the data was interview schedule. Numerical rating scale was used to assess pain. The content validity of the tool was established by six experts. The reliability of the tool was established by inter-rater reliability, computed reliability co efficient r = 0.98 was high. The pilot study was conducted in Alphonsa Pain and Palliative Centre, and the study was found to be feasible.

The main study was conducted in Alphosa Pain and Palliative Centre, Murikasseri, Idukki (Dt) among 36 patients, 20 clients in experimental group and 16 in control group who were selected by purposive sampling method based on sample selection criteria.

First, data were collected from the control group and then followed by experimental group. Pre-test on pain was measured. The intervention through foot massage was given 20 minutes every day for seven consecutive days among experiment group. Post test pain was measured on 1st, 4th, and 7th day. The evidence of intervention and pain score were marked in a grid. The data gathered were analyzed and interpreted in terms of objectives by using SPSS package version 10.A probability of less than 0.05 was used to accept the hypothesis.

The finding of the study were,

- There was a significant difference between the mean pain before and after foot massage in experimental group.
- There was a significant difference in mean post test pain between experimental and control group after foot massage.

- There was a significant difference in mean difference between each observations of cancer pain in relation to foot massage among the clients with cancer in experimental and control group.
- There was no significant association between the mean difference in pain and the selected factors among experimental group.

Thus the study concludes that the cancer patient in the experimental group had reduction in pain after foot massage. So in addition to the pharmacological treatment foot massage can be used for managing pain among cancer patients.

The implication, limitation and recommendation were adequately spelt.